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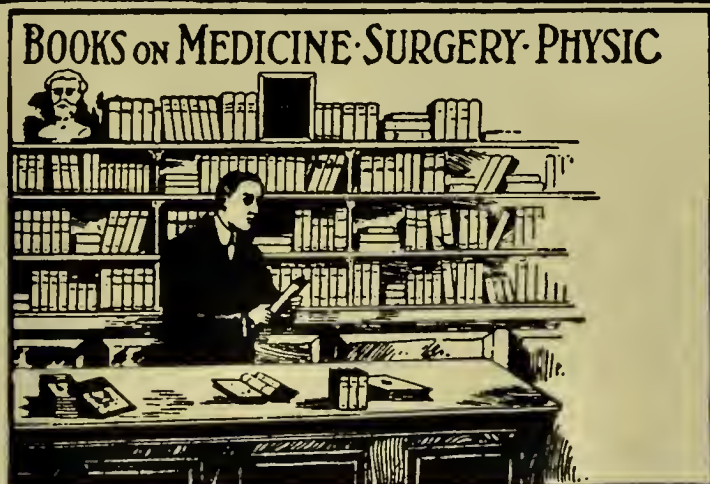
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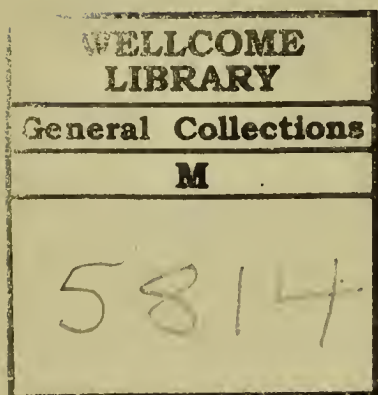
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THE College was founded in the year 1832 under the name of "The Newcastle-upon-Tyne School of Medicine and Surgery," and for two years the lectures were delivered in a suite of rooms situated in Bell's Court. The hall of the Barber-Surgeons at "The Manors" was then rented from that Company, and after being fitted up for the purposes of a Medical School, was opened on the 20th of October, 1834.

In 1851 the School became associated with the University of Durham and assumed the title of "The Newcastle-upon-Tyne College of Medicine in connexion with the University of Durham."

In 1852, Westmorland House, closely adjoining the Library of the Literary and Philosophical Society, was purchased by the Lecturers of the College, and in the garden of the house a new Medical School was built. The house itself was afterwards sold to the Mining Institute, who erected on its site their present building.

In 1870 a closer connexion was established with the University of Durham, one of the provisions being that the College should in future be called "The University of Durham College of Medicine."

The foundation stone of the present College in North-umberland Road was laid on November 3rd, 1887, and the building opened in October, 1889. The "Heath Wing" was added in 1906.

By the University of Durham Act, 1908 (8 Edw. VII. c. 20), Commissioners were appointed to make statutes "regulating the constitution of the University and the powers and duties of its various authorities and constituent bodies and the disposition of its existing property." These statutes, which were approved by His Majesty in Council on November 22nd, 1909, determine, *inter alia* (1) that the University shall consist of two divisions, viz., the "Durham division" and the "Newcastle division," the former to comprise the Colleges in Durham, and the latter the College of Medicine and Armstrong College; and (2) that Senate shall be the supreme governing body of the University. Senate consists of thirty-nine members, of whom four are elected by the College of Medicine.

The College is incorporated under the Companies Acts, and its Articles of Association are registered by the Board of Trade. It is controlled by a Court of Governors and an Executive Council (see p. 13 *et seq.*). The Council consists of twenty-five members, viz.: The Principal of Armstrong College, nine members elected by the Court of Governors, seven by the Academic Board of the College, two by the Senate of the University, two by the Council of Armstrong College, two by the House Committee of the Royal Victoria Infirmary, and two by the Honorary Medical and Surgical Staff of the Royal Victoria Infirmary.

# ALMANAC, 1914-15.

---

## Michaelmas Term, 1914.

- October 1st ...Th.—Term begins.  
 „ 5th ...M. —Registration book closes.  
 „ 13th ...Tu.—Ordinary meeting of Council.  
 „ 13th ...Tu.—Meeting of the Board of the Faculty of Medicine.  
 „ 15th ...Th.—Meeting of the Board of Clinical Studies.  
 November 3rd ...Tu.—Convocation at Durham.  
 „ 3rd ...Tu.—Meeting of Senate at Durham.  
 „ 16th ...M. —Open Day.  
 „ 17th ...Tu.—Meeting of the Board of Faculties.  
 December 1st ...Tu.—Meeting of Senate at Armstrong College.  
 „ 15th ...Tu.—Convocation at Durham.  
 „ 23rd ...W. —Term ends.
- 

## Epiphany Term, 1915.

- January 12th ...Tu.—Term begins.  
 „ 19th ...Tu.—Meeting of the Board of the Faculty of Medicine.  
 „ 28th ...Th.—Meeting of the Board of Clinical Studies.  
 February 2nd ...Tu.—Convocation at Durham.  
 „ 2nd .. Tu.—Meeting of Senate at Durham.  
 „ 9th ...Tu.—Ordinary meeting of Council.  
 „ 10th ...W. —Annual Court of Governors.  
 „ 15th ...M. —Open Day.  
 „ 16th ...Tu.—Meeting of the Board of Faculties.  
 March 2nd ...Tu.—Meeting of Senate at the College of Medicine.  
 „ 4th ...Th.—Class examinations begin.  
 „ 9th ...Tu.—Ordinary meeting of Council.  
 „ 12th ...F. —Examination for the degree of Bachelor of Hygiene and for the diploma in Public Health begins.  
 „ 15th ...M. —First, Second and Third examinations for licence in Dental Surgery, and First and Second examinations for degrees in Medicine and Surgery begin.  
 „ 16th ...Tu. —D.Hy. (Essay) examination.

|       |             |                                                                                                                                                                   |
|-------|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| March | 18th ...Th. | —Examinations for M.D. (Practitioners) and M.S. degrees, Third and Final examinations for M.B. degree, and Final examination for licence in Dental Surgery begin. |
| ,,    | 24th ...W.  | —M.D. (Essay) and B.S. examinations.                                                                                                                              |
| ,,    | 27th ...S.  | —Convocation at College of Medicine.                                                                                                                              |
| ,,    | 27th ...S.  | —Term ends.                                                                                                                                                       |

---

April 4th ... —Easter Sunday.

---

**Easter Term, 1915.**

|       |             |                                                                                                                                                                                            |
|-------|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| April | 16th ...F.  | —Term begins.                                                                                                                                                                              |
| ,,    | 19th ...M.  | —Registration book closes.                                                                                                                                                                 |
| ,,    | 27th ...Tu. | —Meeting of the Board of the Faculty of Medicine.                                                                                                                                          |
| May   | 6th ...Th.  | —Meeting of the Board of Clinical Studies.                                                                                                                                                 |
| ,,    | 11th ...Tu. | —Meeting of Senate at Durham.                                                                                                                                                              |
| ,,    | 23rd ...    | —Whitsun Day.                                                                                                                                                                              |
| ,,    | 25th ...Tu. | —Meeting of the Board of Faculties.                                                                                                                                                        |
| June  | 4th ...F.   | —Examination for the degree of Bachelor of Hygiene, and for the diploma in Public Health begins.                                                                                           |
| ,,    | 7th ...M.   | —Class examinations begin.                                                                                                                                                                 |
| ,,    | 8th ...Tu.  | —Meeting of Senate at Armstrong College.                                                                                                                                                   |
| ,,    | 10th ...Th. | —Examinations for M.D. (Practitioners) and M.S. degrees, Final examination for M.B. degree, and Final examination for licence in Dental Surgery begin.                                     |
| ,,    | 16th ...W.  | —M.D. (Essay) and B.S. examinations.                                                                                                                                                       |
| ,,    | 21st ...M.  | —First, Second and Third examinations for the degree of M.B., First, Second and Third examinations for the licence in Dental Surgery, and examination for the diploma in Psychiatry begin. |
| ,,    | 22nd ...Tu. | —Convocation at Durham.                                                                                                                                                                    |
| ,,    | 29th .. Tu. | —Matriculation examination begins.                                                                                                                                                         |
| July  | 2nd ...F.   | —Term ends.                                                                                                                                                                                |

---

July 13th ...Tu.—Ordinary meeting of Council.

September 21st...Tu.—Matriculation examination and examination for the University Medical Scholarship begin.

,, 25th ...S. —Convocation at Armstrong College.

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*Lecturer on Applied Anatomy*—JOHN CLAY, M.B., B.S. Dunelm.,  
F.R.C.S.

*Demonstrators*—J. DUNLOP LICKLEY, M.D. Glas.;  
W. JOHNSTON, M.B., Ch.B., St. And.

*Physiology.*

*Professor*—F. A. BAINBRIDGE, M.A. Cantab. et Dunelm., M.D.,  
D.P.H. Cantab., D.Sc. Lond., F.R.C.P.

*Lecturer*—J. A. MENZIES, M.D. Edin.

*Biology.*

*Botany*—PROFESSOR M. C. POTTER, M.A. Cantab. et Dunelm.,  
Sc.D. Cantab., F.L.S.

*Zoology*—PROFESSOR ALEXANDER MEEK, M.Sc. Dunelm., F.Z.S.

*Chemistry.*

*Professor*—P. PHILLIPS BEDSON, M.A. Dunelm., D.Sc. Lond. et  
Dunelm., B.Sc. Vict., F.I.C.

*Physics.*

*Professor*—H. STROUD, M.A. Cantab. et Dunelm., D.Sc. Lond. et  
Dunelm., F.Ph.S.L.

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## The Academic Board of the College.

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PROFESSOR H. BRUNTON ANCUS.  
PROFESSOR F. A. BAINBRIDGE.  
PROFESSOR T. BEATTIE .  
PROFESSOR P. PHILLIPS BEDSON.  
PROFESSOR ROBERT A. BOLAM.  
MR. JOHN CLAY.  
PROFESSOR D. DRUMMOND.  
PROFESSOR T. EUSTACE HILL.  
PROFESSOR R. HOWDEN (*Secretary*).  
PROFESSOR W. E. HUME.  
PROFESSOR H. J. HUTCHENS.  
MR. P. C. W. LAWS.  
PROFESSOR R. P. RANKEN LYLE.  
PROFESSOR STUART McDONALD.  
PROFESSOR T. W. McDOWALL.  
PROFESSOR A. MEEK.  
DR. J. A. MENZIES.  
PROFESSOR J. RUTHERFORD MORISON.  
DR. O. W. OGDEN.  
PROFESSOR SIR THOMAS OLIVER.  
PROFESSOR F. PAGE.  
PROFESSOR SIR G. H. PHILIPSON (*Chairman*)  
PROFESSOR M. C. POTTER.  
DR. W. T. SEWELL.  
PROFESSOR H. STROUD.  
MR. G. GREY TURNER.  
PROFESSOR J. D. WARDALE.  
DR. S. S. WHILLIS.

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## Staff of the Newcastle-upon-Tyne Dental Hospital.

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### *Honorary Consulting Physician.*

SIR G. H. PHILIPSON, M.A., M.D., D.C.L., LL.D., F.R.C.P.

### *Honorary Consulting Surgeon.*

J. RUTHERFORD MORISON, M.D., F.R.C.S.

### *Honorary Consulting Dental Surgeons.*

E. FOTHERGILL, L.D.S. Eng.

R. L. MARKHAM, L.D.S. Irel.

### *Honorary Dental Surgeons.*

J. COLTMAN, L.D.S. Edin.

J. W. DANIELS, L.D.S. Edin.

T. R. HAGGARTY, L.D.S. Glas.

J. T. JAMESON, L.D.S. Edin.

C. L. ROUTLEDGE, L.D.S. Edin.

T. R. D. WALKINSHAW, L.D.S. Edin.

### *Honorary Assistant Dental Surgeons.*

J. BOLAM, L.D.S. Edin.

E. R. COOPER, L.D.S. Edin.

H. DAVIS, L.D.S. Glas.

E. GIBBON, L.D.S. Eng.

A. JAMESON, L.D.S. Edin., D.D.S. Penn.

A. M. LAING, L.D.S. Edin.

C. LOTINGA, L.D.S. Edin.

L. M. MARKHAM, M.B., B.S. Dunelm., L.D.S. Edin.

R. B. RECORDON, L.D.S. Eng.

E. Y. RICHARDSON, L.D.S. Edin.

J. L. SCOTT, L.D.S. Glas.

R. M. WEATHERSON, L.D.S. Edin.

### *Anæsthetist.*

W. E. ALDERSON, M.D., M.S., B.Hy., D.P.H. Dunelm.

### *Tutorial Dental Surgeon.*

W. E. HURFORD, L.D.S. Dunelm.

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## Lecturers in the Newcastle-upon-Tyne Dental School.

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*Dental Anatomy and Physiology.*

E. Y. RICHARDSON, L.D.S.

*Dental Mechanics.*

J. W. DANIELS, L.D.S.

*Dental Metallurgy.*

C. LOTINGA, L.D.S.

*Dental Surgery and Pathology.*

JAS. COLTMAN, L.D.S.

*Operative Dental Surgery.*

T. R. D. WALKINSHAW, L.D.S.

*Orthodontia.*

L. M. MARKHAM, M.B., B.S., L.D.S.

*Dental Anæsthetics.*

W. E. ALDERSON, M.D.

*Dental Materia Medica and Therapeutics.*

J. BOLAM, L.D.S.

*Dental Microscopy and Histology.*

C. L. ROUTLEDGE, L.D.S.

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# EXAMINATION FOR MATRICULATION IN THE FACULTIES OF MEDICINE, SCIENCE, ARTS AND COMMERCE. (*Newcastle Division.*)

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## MATRICULATION BOARD.

|                              |                                  |
|------------------------------|----------------------------------|
| J. W. Duff, M.A., D.Litt.    | F. B. Jevons, M.A., D.Litt.      |
| H. Ellershaw, M.A.           | T. W. McDowall, M.A., M.D.       |
| W. H. Hadow, M.A., D.Mus.    | Sir G. H. Philipson, M.A., M.D., |
| P. J. Heawood, M.A.          | D.C.L.                           |
| R. Howden, M.A., M.B., D.Sc. | Henry Stroud, M.A., D.Sc.        |

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## GENERAL REGULATIONS.

1.—The examination is held in Newcastle twice a year; in June at Armstrong College, and in September at the College of Medicine.

The examinations in 1915 commence on Tuesday, June 29th, and Tuesday, September 21st, at 10 a.m.

2.—A candidate who wishes to enter the College of Medicine shall send to Professor Howden, College of Medicine, Newcastle-upon-Tyne, *one calendar month* before the first day of the examination at which he wishes to present himself, a paper containing his name *in full* and the particular subjects in which he wishes to be examined, together with the required fee.

3.—The candidate shall pay a fee of £1 10s. 0d. on each separate occasion on which he desires to be examined. Candidates sending in their names after the time appointed pay an additional fee of 5s. Names of candidates sent in after the Time Table is printed can only be accepted (*if at all*) on payment of an additional fee of £1. The Time Table is printed about a fortnight before the examination commences.

4.—No entry can be accepted unless it be accompanied by the fee, and no late entry unless it be accompanied by the extra fee required.

5.—No fee will be returned.

6.—Candidates who have entered for the examination may withdraw their names upon giving nine days' notice; and in that case may enter *either* at the next examination *or* the next but one (but not afterwards) without further payment.

7.—Candidates who have withdrawn their names will be placed on the list for the next examination, but if they wish to defer being examined to the next examination but one, they must give due notice as provided in 6 above.

8.—Students who have passed any of the examinations accepted by the University as equivalent to the Matriculation examination (for list see pp. 30, 31), must send to Professor Howden, at the College of Medicine, Newcastle-upon-Tyne, proof that they have passed such examination, together with the fee of £1 10s. 0d.

Students who have satisfied the requirements of the General Medical Council as regards Registration, in some examination other than the Durham Matriculation or its equivalent (for list see pp. 30, 31), may enter on a course of study for a degree in Medicine upon satisfying the Examiners of the University of Durham in *three* of the subjects of the Matriculation examination, provided that one of them at least is a language other than English. In the case of a student who has studied only one year in the University, the above Regulation must have been complied with at least one year before the candidate presents himself for his final examination.

No Bachelor of Medicine shall be admitted as a candidate for the degree of Doctor of Medicine unless at some time previously to the examination he has passed in either Greek or German at the Matriculation examination or one of its equivalents.

Registered students in Medicine, who have passed the University of Durham Matriculation examination before entering on study in the University, and who desire to take the degree of B.Sc., will be excused from study and examination in Mathematics after Matriculation.

## SUBJECTS OF EXAMINATION REQUIRED IN THE FACULTY OF MEDICINE.

In order to enter on a course of study for a degree in Medicine a student must have previously satisfied the Examiners in the following subjects :—(1) Mathematics. (2) English. (3) English History. (4) Physical and General Geography. (5) Latin.\* (6) One subject selected from the following :—Greek. French. German.

*This examination is recognized by the General Medical Council for the Registration of Medical Students.*

**MATHEMATICS.**—(a) Arithmetic. (b) Geometry of the triangle, parallelogram, and circle including the substance of Euclid, Books I., II., III., with easy deductions and practical constructions with ruler and compasses, etc. No candidate shall pass who cannot make intelligent application of the subject matter. (c) Algebra, up to and including Quadratic Equations.

**ENGLISH.**—Grammar. Analysis and parsing of sentences. Composition of a short essay. Portions of special authors or general questions in English Literature. The prescribed books for 1915 are Shakespeare, *Richard II.* ; Milton, *Comus and Lycidas* ; Golden Treasury of English Lyrics, Book IV. For 1916, Shakespeare, *Richard II.* ; Milton, *Paradise Lost*, I., II. ; Tennyson, *Coming of Arthur, Holy Grail, Last Tournament, Guinevere, Passing of Arthur.*

**ENGLISH HISTORY.**—The general facts of English History, a choice of questions being given.

**PHYSICAL AND GENERAL GEOGRAPHY.**—The elementary facts of the earth in its relation to the solar system. Day and night. Climate and the seasons. Eclipses. Distribution of land and water. Continental and oceanic areas. Contours. Heights and depths. Mountain and river systems. Atmosphere. Physical characteristics. Thermometer and barometer. Climate. Rain-fall and winds. Sea: composition, temperature, waves and currents. Earth sculpture and the agents by which it is effected. Earth movements and their results. The elements of the distribution of animals and plants. Political Geography generally as dependent upon Physical Geography. The elements of the Political Geography of the British Empire, especially that of the United Kingdom.

**LATIN.**—Grammar. Translation of short sentences from English into Latin. Translation into English of passages from books not previously specified. Translation into English of

\* In the case of Oriental Students, Sanskrit may be offered in place of Latin.



books previously specified. For 1915, Cicero, *Pro Roscio Amerino*, Book I., or Ovid, *Tristia*, I. For 1916, either Cæsar, *De Bello Civili*, Book I., or Virgil, *Aeneid*, Book I.

N.B.—For candidates who prefer it, in place of translation from the prescribed book, further passages from books not previously specified will be set. Candidates, however, must notify their wish when sending in their names.

GREEK.—Grammar. Translation into English of passages from books not previously specified. Translation into English of books previously specified. For 1915, either Xenophon, *Anabasis*, III., IV., or Euripides, *Hecuba*. For 1916, either Xenophon, *Anabasis*, I., II., or Euripides, *Medea*.

N.B.—For candidates who prefer it, in place of translation from the prescribed books, further passages from books not previously specified will be set. Candidates, however, must notify their wish when sending in their names.

FRENCH.—Grammar. Translation from English into French, or the composition of an Essay in French. Translation into English of passages from books not previously specified.

GERMAN.—Grammar. Translation from English into German, or the composition of an Essay in German. Translation into English of passages from books not previously specified.

or

Some other language, approved by the Matriculation Board.

EXTRA MATHEMATICS.—(a) Arithmetic, with practical application. (b) Geometry of the triangle, parallelogram, circle and similar figures including the substance of Euclid: Books I—IV, and VI. with deductions. (c) Algebra, up to and including the Binomial Theorem for a positive integral index. (d) Trigonometry, including the solution of triangles. (e) Use of Logarithmic tables.

BOTANY.—The external form and gross anatomy of flowering plants as far as they can be studied with the aid of a lens. The structure and pollination of flowers. The fundamental facts of plant physiology, as derived from experiments that have been performed by the candidates themselves. The examination shall include practical questions upon common British plants.

or

ZOOLOGY.—The elementary anatomy and physiology of the Rabbit; the structure of the cell, and the general microscopical structure of the tissues of the body of such an animal as the Rabbit; the elementary structure, habits, and life-history of the Amœba, the fresh-water Polype (Hydra), the Earthworm, and the Frog.

EXPERIMENTAL SCIENCE.—Measurement of length, area, and volume. The balance, and weighing. Comparison of the metric and British systems of weights and measures. Velocity,



acceleration, force. The relation of mass and weight. Measurement of forces (*e.g.*, by the spring balance). Composition of two forces acting at a point. Resolution of forces. Attwood's machine, and the general laws of falling bodies. The characteristics of matter in solid, liquid, and gaseous states. The principle of Archimedes. Density and specific gravity determinations. Atmospheric pressure. The barometer. Boyle's law. General ideas of the effect of heat on matter. Measurement of temperature. Thermometers. The principle and construction of the mercurial thermometer. Changes of length, area and volume of solids, and volume of liquids and gases, with change of temperature. Measurement of quantity of heat, and calorimeters. Specific heat. The following in reference to ice, water, and steam: Change of state, latent heat, melting point, boiling point. Simple phenomena of heat in connexion with conduction, convection, and radiation. Heat as a form of energy. Chemical and physical change; the indestructibility of matter. Elements, compounds and mixtures: the constancy of composition of compounds. Air, oxygen and nitrogen; the discovery of the composition of air; combustion, respiration. Water: its properties and composition; natural waters; water for domestic purposes; the saline constituents of natural waters; hard and soft waters. The study of limestone, of salt, and of washing soda.

*or*

CHEMISTRY.—Chemical and Physical Change. Mixtures. Compounds. Elements. Formulæ. Equations. Calculations of Weights of Materials taking part in chemical reactions. Air. Oxygen. Nitrogen. Combustion. Respiration. Correction of Gas Volumes for Temperature and Pressure. Water. Hydrogen. Composition of Water. Natural Waters. Water as a Solvent. Sulphur—its compounds with Hydrogen and with Oxygen. Sulphuric Acid. Sulphates. Salt. Chlorine—its compound with Hydrogen; the Oxy-acids of Chlorine. Carbon. Typical Hydrides. Oxides of Carbon. Fuel—Coal. Nitric Acid. Nitrates. Oxides of Nitrogen. Ammonia. Phosphorus. Its Hydride and Chlorides. Phosphoric Acids. Law of Constant Proportion. Law of Multiple Proportion, and the Law of Volumes as illustrated by the composition of the compounds of the commoner non-metals. The Atomic theory. Calculation of the Volumes of Gases resulting from chemical reactions. The general Physical and Chemical characters of the Metals.

*or*

PHYSICS.—Simple physical measurements, and the principles and uses of the apparatus required. Expansion of solids, liquids and gases due to change of temperature. Thermometry. Calorimetry. Specific Heat. Liquefaction and Solidification. Vaporization and Condensation. Ebullition. Latent Heat. Conduction, Convection and Radiation. Heat and Work. Propagation of Light. Velocity of Light. Photometry.

Reflection and Refraction of Light. Formation of Images by plane and spherical mirrors and thin lenses. The prism. The spectrum. Simple phenomena of magnetism and magnetic measurements. Terrestrial Magnetism. Electrostatics. Batteries and the production of Electric Currents. Ohm's law and simple electrical measurements. Magnetic, chemical and heating effects of the electric current. Simple phenomena of electro-magnetic induction.

NOTE.—Candidates in Physics should have had practical experience in a Laboratory.

ELEMENTARY MECHANICS.—Rectilinear Motion. Laws of Motion. Composition and Resolution of Vectors. Theory of Moments. Elementary Principles of Statics. Centres of Gravity of simple solids. Uniform Circular Motion.

### EXAMINATIONS RECOGNIZED AS EQUIVALENT TO THE MATRICULATION EXAMINATION (*vide* General Regulations, 8, p. 26) :—

An Examination qualifying for a degree in Arts of any University of the British Empire.

The Examination for Responsions of the University of Oxford.

The Previous Examination of the University of Cambridge.

The Matriculation Examination or the School Leaving Examination of the University of London.

The Preliminary Examination of the Joint Board of the Scottish Universities.

The Joint Matriculation Examination of the Universities of Manchester, Liverpool, Leeds and Sheffield.

The Matriculation Examination of the University of Wales.

The Preliminary Examination of the University of Birmingham.

The Matriculation Examination of the University of Bristol.

The Senior Local Examination of the University of Oxford, provided the subjects required by the University are included.

The Senior Local Examination of the University of Cambridge, provided the subjects required by the University are included.

The Higher Certificate Examination of the Joint Examination Board of the Universities of Oxford and Cambridge, provided the subjects required by the University are included.

The Oxford and Cambridge Joint Board Schools (leaving) Certificate, provided the subjects required by the University are included.

The Leaving Certificate of the Higher Grade of the Scottish Education Department, provided the subjects required by the University are included.

The Senior Certificate or the Honour Certificate Examination of the Central Welsh Board, provided the subjects required by the University are included.

Foreign students may be exempted from the Matriculation examination on a report from the Academic Board of the College that they have already passed an examination abroad equivalent to the Matriculation examination of the University, and that they have sufficient knowledge of English to enable them to follow the courses of instruction for which they are entering.

Students from Oriental countries must register as medical students on the books of the General Medical Council. They may be exempted from the Matriculation examination on a report from the Academic Board of the College that they have received such an education in their own country as will enable them to profit by University study, and that they have sufficient knowledge of English to enable them to follow the courses of instruction for which they are entering.

Candidates from Indian Universities must have passed a Matriculation examination at one of the Indian Universities, and must register as medical students on the books of the General Medical Council. If the Matriculation examination at the Indian University did not embrace Latin, and one of the following, viz.: Greek, Persian or Sanskrit, the candidate must pass in Latin, and in one of the other three languages mentioned.

## SCHOLARSHIPS, PRIZES AND MEDALS.

### University Scholarships.

Four scholarships of £25 a year each were set apart in 1856 for students of Medicine, and are tenable for four years by students pursuing their medical studies and not of sufficient standing to proceed to a degree in Medicine.

#### REGULATIONS.

1.—In ordinary cases such medical scholarships as shall have become vacant shall be filled up at the beginning of Michaelmas Term in each year.

2.—Candidates must produce to the Vice-Chancellor and Senate satisfactory testimonials of character.

3.—Candidates for the medical scholarships shall be those persons who are desirous of being admitted as medical students, or who have not attended more than one term in the College of Medicine, and the successful candidates must pursue their entire curriculum at the University of Durham College of Medicine, Newcastle-upon-Tyne.

4.—The examination shall be the Matriculation examination of the University, held in September.

5.—The subjects of examination are:—English, Latin, Arithmetic, Algebra, Euclid, Geography, English History, and Greek or German, or both. The books recommended are given on page 27 *et seq.*

6.—The scholarships shall be tenable by the successful candidates for four years, provided they produce, each term, satisfactory testimonials of character from the Secretary of the College of Medicine, and pass their professional examinations in a creditable manner.

7.—If a scholarship be forfeited from any cause, the Vice-Chancellor and Senate shall have power to assign the scholarship for the remaining part of the period to a student not already a scholar, who may be recommended by the Council of the College of Medicine.

*Scholars.*

|                         |                           |
|-------------------------|---------------------------|
| 1856—William C. Arnison | 1885—F. Bulman, B.A.      |
| 1857—Evan Thompson      | 1886—R. H. Shaw           |
| 1858—John Hope          | 1887—G. Foggin, B.A.      |
| 1859—W. R. Coward       | 1888—W. E. Peacock        |
| 1860—A. O. Haslewood    | 1889—Jno. Braithwaite     |
| 1861—G. C. Gilchrist    | 1890—R. A. Morris         |
| 1862—F. W. Newcombe     | 1891—G. W. Harbottle      |
| 1863—W. J. Davidson     | 1892—M. A. Archdall       |
| 1864—F. S. Higgs        | 1893—H. A. Fielden        |
| 1865—No Candidate       | 1894—H. B. Fawcus         |
| 1866 { Dudley Eglington | 1895—F. W. Lambelle       |
| { Charles Gibson        | 1896—J. H. Graham         |
| 1867—R. W. Young        | 1897—W. M. Emmerson       |
| 1868—Michael Hodgson    | 1898—W. H. Peacock        |
| 1869—John Murray        | 1899—J. L. Wilson, M.A.   |
| 1870—Thomas Lindsay     | 1900—J. H. Cooke, B.Litt. |
| 1871—John B. Emmerson   | 1901—David Ranken         |
| 1872—Motherwell Duggan  | 1902—H. M. Levinson       |
| 1873—Chas. Riddell Bell | 1903—C. F. M. Saint       |
| 1874—Chas. M. Goyder    | 1904—P. A. Galpin         |
| 1875—J. R. Dodd         | 1905—J. C. Young          |
| 1876—W. Robinson        | 1906—J. B. Alderson       |
| 1877—A. J. Beanlands    | 1907—T. C. Storey         |
| 1878—C. S. Blair        | 1908—J. S. Arkle          |
| 1879—J. S. Reveley      | 1909—C. Armstrong         |
| 1880—J. M. Robson       | 1910—H. Evers             |
| 1881—A. Green           | 1911—J. Brumwell          |
| 1882—L. L. Bailes, B.A. | 1912—M. J. Erdberg        |
| 1883—L. A. Baine        | 1913—A. T. Harrison       |
| 1884—A. E. Cope         |                           |

**Pears Scholarship.**

This scholarship was founded on a bequest made by George Pears, of Witton-le-Wear, in a will dated 31st May, 1898.

The conditions of this scholarship, as set forth in the bequest, are :—

1.—That it should be granted to a candidate who has not yet matriculated.

2.—That the elected candidate should begin residence in the University in the term next ensuing after his election.

3.—That such scholar may pursue his education in the Faculties of (a) Arts, or (b) Theology, or (c) Medicine.



4.—The scholarship is to be tenable for three years ; with power to the “University Authorities” to withdraw the scholarship in case of misconduct or idleness.

5.—The donor directs that, though the scholarship is to be open to all, other things being equal, a preference should be given to a native of Witton-le-Wear or of Bishop Auckland, or of any place within a radius of two miles from either of these places. Candidates must be persons who “but for the help of the scholarship would not be able to meet the expenses of a University course.”

#### REGULATIONS.

1.—The examination on which this scholarship shall be awarded shall be the Matriculation examination of the University held in September. Candidates for the scholarship must offer, in addition to the five subjects necessary for Matriculation, Greek (if they propose to study Arts or Theology); and either Greek, French, or German (if they propose to study Medicine).

2.—The scholarship is open on equal terms to both sexes.

3.—The scholarship at present is of the value of £50 a year.

#### *Scholars.*

1906—John Lumb

1909—Francis Metcalfe

1912—Freda Newman

*N.B.—The University scholarship and the Pears scholarship cannot be held together.*

### Dickinson Scholarship.

The friends of the late JOHN DICKINSON, M.B. Dunelm., who was Medical Officer of the Universities' Mission to Central Africa in 1863, desiring to testify their admiration for his character, and their sorrow at his untimely death, subscribed a sum of £300, to which a further sum of £65 10s. has been added, accruing from the years in which the scholarship was not awarded, Mrs. WALKER and Mr. WM. HENRY DICKINSON further contributing to raise the amount to £400. The interest of this amount is awarded after examination, at the end of Easter term in each year.

#### REGULATIONS.

1.—Candidates must be full students of the College who have passed the third professional examination for the degree of Bachelor

of Medicine, and must enter for the examination in their fifth year of study.

2.—The subjects of examination are:—Medicine, Surgery, Midwifery and Pathology.

3.—A gold Medal shall be presented to the elected scholar.

*Scholars.*

1868—James Douglas Murray  
 1869—George Rowell  
 1870—John Teasdale Clarke  
 1871—W. T. Kaye  
 1872—Auburn Wilkinson  
 1873—W. T. Wilson, M.A.  
 1874—No Award  
 1875—George Newton  
 1876—M. Duggan  
 1877—M. Malvin  
 1878—C. M. Goyder  
 1879—Jno. R. Dodd  
 1880—W. G. Black  
 1881—W. Robinson  
 1882—S. Brookfield  
 1883—No Award  
 1884—No Award  
 1885—F. Prond  
 1886—B. G. Sumpter  
 1887—No Award  
 1888—H. J. Parry  
 1889—R. H. Shaw  
 1890—No Award  
 1891—No Award

1892—W. H. Bishop  
 1893—R. A. Morris  
 1894—E. R. Kendall  
 1895—J. R. Adamson  
 1896—Charles Salkeld, B.A.  
 1897—No Award  
 1898—G. G. Turner  
 1899—R. H. Dix  
 1900 { R. Alderson  
       { F. W. Lambelle  
 1901—T. S. Coates  
 1902—J. B. Waters  
 1903—H. Wolfe  
 1904—G. E. Lloyd  
 1905—No Award  
 1906—F. C. Pybus  
 1907—H. M. Levinson  
 1908—C. F. M. Saint  
 1909—J. E. Dainty  
 1910—G. C. M. M'Gonigle  
 1911—J. H. Barclay  
 1912—T. C. Storey  
 1913—Evelyn Ritson

### Tulloch Scholarship.

BENJAMIN TULLOCH, Esq., a surgeon of Newcastle-upon-Tyne, bequeathed in 1875 a sum of £400, the interest from which is to be awarded as a scholarship after examination at the end of Epiphany term in each year.

#### REGULATIONS.

1.—Candidates must be full students of the College, and not of more than six terms standing from Matriculation.

2.—The subjects of examination are :—Anatomy, Physiology and Chemistry.



*Scholars.*

|                        |                           |
|------------------------|---------------------------|
| 1877—J. R. Dodd        | 1896—Edward Gofton        |
| 1878—No Award          | 1897—J. R. Burn           |
| 1879 { W. Robinson     | 1898—Alfred Parkin        |
| { C. H. C. Milburn     | 1899—James Bowden Waters  |
| 1880—Samuel Brookfield | 1900 { John Cooper, B.Sc. |
| 1881—I. Hartley        | { W. H. Peacock           |
| 1882—J. S. Reveley     | 1901—T. W. Maddison       |
| 1883—F. Proud          | 1902—No Award             |
| 1884—A. F. Bradbury    | 1903—No Award             |
| 1885—L. A. Baine       | 1904—H. M. Levinson       |
| 1886—A. E. Cope        | 1905—C. F. M. Saint       |
| 1887—F. Bulman, B.A.   | 1906—P. A. Galpin         |
| 1888—No Award          | 1907—J. E. Dainty         |
| 1889—No Award          | 1908 { J. H. Barclay      |
| 1890—J. P. Willis      | { J. Lumb                 |
| 1891—C. G. B. Kempe    | 1909—H. Fairclough        |
| 1892—Thos. Horton      | 1910—J. S. Arkle          |
| 1893—Jno. R. Adamson   | 1911—E. R. A. Merewether  |
| 1894—A. G. W. Pearson  | 1912—No Award             |
| 1895—Henry Coxon Coxon | 1913—No Award             |

**Charlton Scholarship.**

The friends (professional and private) of the late EDWARD CHARLTON, M.D. Edin., D.C.L. Dunelm., President of the College, and Professor of Medicine in the University, to show their appreciation of his professional and scientific worth, and to perpetuate his memory, contributed a sum of money, by means of which his portrait has been placed in the library of the Royal Victoria Infirmary, Newcastle-upon-Tyne, and £700 invested to found a scholarship in Medicine in the College. The fund was invested in the purchase of £464 North Eastern Railway Consols; and a further sum of £37 16s. arising from a year in which the scholarship was not awarded has since been invested in the purchase of £27 North Eastern Railway Consols.

**REGULATIONS.**

The scholarship shall be awarded after examination at the end of each Epiphany term, and is open to full students of the College who have attended lectures on the Principles and Practice of Medicine, and may be competed for at the end of their fourth or fifth winter (the winters must have been consecutive).

*Scholars.*

1877—Mark Malvin  
 1878—C. M. Goyder  
 1879—Hugh T. Bowman  
 1880—W. G. Black  
 1881—W. Robinson  
 1882—S. Brookfield  
 1883—H. M. Fenwick  
 1884—J. M. Lazenby  
 1885—H. T. Platt  
 1886—B. G. Sumpter  
 1887—J. W. Leech  
 1888—H. J. Parry  
 1889—R. H. Shaw  
 1890—Henry Smith  
 1891—W. J. Durant  
 1892—J. P. Willis  
 1893—A. E. Thompson  
 1894—T. C. Barkas  
 1895—E. R. Kendall

1896—C. Salkeld, B.A.  
 1897—D. W. Patterson  
 1898—James Milligan  
 1899—F. W. Lambelle  
 1900—Reginald Alderson  
 1901—Alfred Parkin  
 1902—A. H. Procter  
 1903—T. W. Maddison  
 1904—F. Stoker  
 1905—R. J. Willan  
 1906—W. Fairclough  
 1907—H. M. Levinson  
 1908—C. F. M. Saint  
 1909—G. H. Wood  
 1910—J. E. Dainty  
 1911—W. G. Bendle  
 1912—T. C. Storey  
 1913—J. S. Arkle

**Gibb Scholarship.**

Dr. C. J. GIBB, a former Lecturer on Pathology in the College, presented, in 1879, a sum of £500 for the purpose of founding a scholarship in Pathology.

**REGULATIONS.**

1.—Candidates must be full students of the College who are not of the standing of Bachelors of Medicine.

2.—The scholarship will be awarded at the end of Easter term to the student who passes the best examination in Pathology.

*Scholars.*

1879—J. Foggin  
 1880—W. G. Black  
 1881—W. Robinson  
 1882—A. Dodd  
 1883—J. M. Lazenby  
 1884—Fredk. Proud  
 1885—A. Green  
 1886—M. M. Bowlan  
 1887—H. J. Parry  
 1888—A. E. Cope  
 1889—R. F. Craggs  
 1890—Alf. Cox  
 1891—Benjamin May  
 1892 { H. E. Gamlen  
       W. E. Peacock  
 1893—R. A. Morris  
 1894 { E. R. Kendall  
       W. E. Alderson  
 1895—F. S. Walker  
 1896—Charles Salkeld, B.A.  
 1897—H. Coxon Coxon

1898 { J. Muirhead  
       G. G. Turner  
 1899 { R. H. Dix  
       Edward Gofton  
 1900—J. R. Burn  
 1901—Alfred Parkin  
 1902 { A. G. Dunn  
       Fred. Stoker  
 1903—D. R. Guns  
 1904—R. J. Willan  
 1905—F. C. Pybus  
 1906—H. M. Levinson  
 1907—C. F. M. Saint  
 1908—E. C. Braithwaite  
 1909 { G. H. Wood  
       J. E. Dainty  
 1910—J. H. Barclay  
 1911—T. C. Storey  
 1912—J. S. Arkle  
 1913 { F. Metcalfe  
       J. E. Measham

## Luke Armstrong Scholarship.

The friends of the late Dr. LUKE ARMSTRONG, who was a Lecturer in the College for a period of twenty-four years, desiring to testify their esteem and to perpetuate his memory, contributed a sum of £680, which has been invested to found a scholarship in Comparative Pathology.

### REGULATIONS.

1.—The scholarship is open to all graduates in Medicine or Hygiene, and to candidates for those degrees who have spent at least two terms at the University.

2.—The scholarship will be awarded at the end of Easter term in each year to the author of the best essay on some subject in Comparative Pathology which has been approved by the Heath Professor of Comparative Pathology.

Candidates must not be more than 30 years of age at the time the essay is presented.

The essay must be type-written or printed and must be received by the Heath Professor not later than the 1st June in any year.

The essay may be illustrated by drawings, preparations and specimens. These together with the successful essay shall become the property of the College.

3.—The successful candidate shall be styled the Luke Armstrong Scholar in Comparative Pathology.

4.—By permission of the Council of the College the scholar may publish his essay.

5.—In the event of no essay of sufficient merit being presented, the scholarship may be awarded to the candidate who, in passing Part I. of the examination for the degree of B.Hy. obtains the highest number of marks in Comparative Pathology, during the year.

Up to and including the year 1897 the scholarship was awarded to the student who passed the best final examination for the degree of Bachelor of Medicine. Subsequently to 1897 the scholarship has been awarded, in the absence of an essay of sufficient merit, on the results of the Comparative Pathology part of the examination for the degree of Bachelor of Hygiene.

*Scholars.*

## (FINAL EXAMINATION FOR DEGREE OF M.B.)

- 1889—Albert Ernest Cope, M.B., B.S.  
 1890—Thos. Beattie, M.B., B.S.  
 1891—Edward Cecil Willcox, M.B., B.S.  
 1892—Wm. Harvey Maidlow, M.B., B.S., M.R.C.S., L.R.C.P.  
 1893—Bedlington Howell Morris, M.B., B.S.  
 1894—Thomas Horton, M.B., B.S.  
 1895—Chas. Allan La Touche Brough, M.B., B.S., L.R.C.P.  
 1896—Edwin Gilbert Emerson Arnold, M.B., B.S., M.R.C.S.,  
 L.R.C.P.  
 1897—D. W. Patterson, M.B., B.S.

## (COMPARATIVE PATHOLOGY.)

- 1898—P. E. Turner, M.B., B.S., M.R.C.S., L.R.C.P.  
 1899—J. W. King, M.B., B.S.  
 1900—Harold R. D. Spitta, M.B., B.S., M.R.C.S., L.R.C.P., D.P.H.  
 1901—No award.  
 1902—Emmeline da Cunha, B.Hy. Durh., L.M. and S., Bombay  
 University.  
 1903—David Young, M.B., Ch.B. Ed., D.P.H. Durh.  
 1904—No award.  
 1905—Kuruntholical Thomas Matthew, B.Hy. Durh., L.M. and S.,  
 Madras University.  
 1906—Isaac Thompson, B.Hy. Durh., M.B., Ch.B. New Zealand.  
 1907—George Pillans Harlan, M.D., Ch.B. Glas., B.Hy., D.P.H.  
 Durh.  
 1908—Herbert Max Levinson, M.B., B.S.  
 1909—John Tyrer Johnson, M.D., B.Hy.  
 1910—Eldred Curwen Braithwaite, M.B., B.S., B.Hy., D.P.H.  
 1911—Charles Frederick Morris Saint, M.B., B.S.  
 1912—Patrick Albert Galpin, M.D., B.S.  
 1913—William Hudson, M.B., B.S.

**Stephen Scott Scholarship.**

The late STEPHEN SCOTT, Esq., of Harrogate and formerly of Newcastle-upon-Tyne, generously presented to the College the sum of £1,000 for the purpose of founding a scholarship. The interest of this sum is awarded at the end of Easter term in each year.

**REGULATIONS.**

1.—Any graduate in Medicine or Surgery of the University or any student of the College shall be eligible for the scholarship provided the student has kept at least three terms in the College.

2.—Candidates must submit an original essay on some surgical subject approved by the Professor of Surgery. (By the terms of Mr. Scott's gift the subject of the essay was at first limited to "Hernia and allied subjects," but was afterwards extended to include any surgical subject.)

3.—Candidates must not be more than 30 years of age at the time when the essay is presented.

4.—The essay must be received by the Secretary of the College not later than the 1st June in any year.

The essay must be type-written or printed, and may be illustrated by drawings, preparations and specimens at the option of the author.

5.—The examiner shall be the Professor of Surgery.

6.—The essays and all specimens, preparations, etc., illustrating them shall become the property of the College.

7.—By permission of the Council of the College the scholar may publish his essay.

8.—The scholarship will not be awarded unless the examiner deems the essay of sufficient merit, and in case it is at any time withheld, the proceeds shall be applied to the purposes of the scholarship in such manner as the Trustees may direct, either by addition to the capital sum, or by giving an additional prize on any other occasion when a second essay shall be deemed to deserve it.

#### *Scholars.*

|                                                                                        |                                                            |
|----------------------------------------------------------------------------------------|------------------------------------------------------------|
| 1893—No Award                                                                          | 1904—J. W. Heslop, M.B., B.S.                              |
| 1894—No Award                                                                          | 1905—No Award                                              |
| 1895—C. G. B. Kempe, M.B., B.S.                                                        | 1906—No Award                                              |
| 1896—No Award                                                                          | 1907—F. C. Pybus, M.B., B.S.                               |
| 1897—Bertram C. Stevens                                                                | 1908—{ H. M. Levinson, M.B.,<br>B.S.                       |
| 1898—No Award                                                                          | 1908—{ Fred Stoker, M.B., B.S.<br>R. J. Willan, M.B., B.S. |
| 1899—P. E. Turner, M.B., B.S.,<br>M.R.C.S., L.R.C.P.                                   | 1909—D. Ranken, M.B., B.S.                                 |
| 1900—No Award                                                                          | 1910—C. F. M. Saint, M.B.,<br>B.S.                         |
| 1901—No Award                                                                          | 1911—J. C. Stewart, M.B.,<br>B.S., F.R.C.S.                |
| 1902—No Award                                                                          | 1912—No Award                                              |
| 1903—{ G. Grey Turner, M.B.,<br>M.S., F.R.C.S.<br>Lachlan George Fraser,<br>M.D., B.S. | 1913—No Award                                              |

## Heath Scholarship.

The late GEORGE YEOMAN HEATH, M.D., M.B., D.C.L., F.R.C.S., Professor of Surgery in the University of Durham, and President of the University of Durham College of Medicine, bequeathed the sum of £4,000, to found a scholarship in Surgery, the interest to be awarded every second year.

In accordance with the will of the late DR. HEATH, the Trustees of the Heath scholarship will, on the recommendation of the Professor of Surgery, pay to the writer of the best original essay the sum of £200.

### REGULATIONS.

1.—All graduates in Medicine or Surgery of the University are eligible for the scholarship.

2.—The scholarship will be awarded to the author of the best original essay on some surgical subject.

The subject selected for 1916 is "Wound treatment."

3.—The essay (type-written or printed) must be received by the Professor of Surgery not later than 31st March, 1916.

4.—The essay for which the scholarship is awarded together with all specimens, drawings, casts, microscopical preparations, or other means of illustration accompanying it will become the property of the College.

5.—By permission of the Council of the College the scholar may print his essay for general circulation.

### *Scholars.*

1896—George Palmerston Newbolt, M.B., F.R.C.S.

1898—C. G. B. Kempe, M.B., B.S.

1900 } Major J. R. Dodd, M.D., F.R.C.S., D.P.H.

      } Nathan Raw, M.D.

1902—No Award

1904—W. G. Richardson, M.B., B.S., F.R.C.S.

1906—No Award

1908—J. W. Heslop, M.B., B.S.

1910—G. Grey Turner, M.B., M.S., F.R.C.S.

1912—F. C. Pybus, M.B., M.S. F.R.C.S.

## Masonic Scholar.

1906—John Lumb



## Goyder Scholarship.

The interest of the sum of £325, contributed by friends (professional and private) of the late CHARLES MCIVOR GOYDER, Surgeon, whereby his memory may be perpetuated, and medical students incited to emulate his meritorious example, will be awarded annually to the student who shall most distinguish himself in clinical Medicine and clinical Surgery at the Royal Victoria Infirmary, Newcastle-upon-Tyne.

### REGULATIONS.

The scholarship shall be attached to the Royal Victoria Infirmary, Newcastle-upon-Tyne, and be termed the Goyder Scholarship.

The subjects of examination shall be Clinical Medicine and Clinical Surgery.

The scholarship shall be open for competition to students during their fourth and fifth years only of medical study; the scholarship shall not be taken twice by the same student; and no student shall be eligible for examination unless he be a full student, both at the College of Medicine and at the Royal Victoria Infirmary, Newcastle-upon-Tyne.

The examination for the scholarship shall be in the hands of the Honorary Staff of the Royal Victoria Infirmary, Newcastle-upon-Tyne, who shall have power, if the candidates do not show sufficient merit, to withhold the scholarship. In the following year the scholarship not awarded shall be competed for, in addition to the scholarship of that year, but both shall not be held by the same individual.

### *Scholars.*

|                          |                        |
|--------------------------|------------------------|
| 1885—No Award            | 1900—R. H. Dix         |
| 1886—W. Baigent          | 1901—J. W. Heslop      |
| 1887—No Award            | 1902—No Award          |
| 1888—H. J. Parry         | 1903 { A. G. Dunn      |
| 1889—R. H. Shaw          | C. H. Crass            |
| 1890—Thos. Beattie       | 1904—F. Stoker         |
| 1891—Wm. Jas. Durant     | 1905—E. Tate           |
| 1892—J. P. Willis        | 1906—W. Fairclough     |
| 1893—B. H. Morris        | 1907—H. M. Levinson    |
| 1894—T. C. Barkas        | 1908—C. F. M. Saint    |
| 1895—E. R. Kendall       | 1909—E. C. Braithwaite |
| 1896—Norman McCall-Smith | 1910—J. E. Dainty      |
| 1897—W. L. W. Walker     | 1911—W. G. Bendle      |
| 1898—G. G. Turner        | 1912—T. C. Storey      |
| 1899—James Muirhead      | 1913—J. S. Arkle       |



## PRIZES.

### Gibson Prize.

Under the will of the late Dr. CHARLES GIBSON the College, in the year 1895, came into possession of a sum of £225, the income from which is given annually as a prize in the subject of Midwifery and Gynæcology. Dr. GIBSON entered the Newcastle School of Medicine and Surgery as a Student in 1837—five years after the foundation of the School. In 1851, he was appointed Lecturer on Midwifery and Diseases of Women and Children—a post which he held until his death in April, 1894.

#### REGULATIONS.

The prize is open to students who have attended not more than one course of lectures on Midwifery and Gynæcology, but no student shall be eligible after the completion of his curriculum.

#### *Prizemen.*

|                         |                        |
|-------------------------|------------------------|
| 1897—D. W. Patterson    | 1905—R. W. Swayne      |
| 1898—Edward Gofton      | 1906—F. C. Pybus       |
| 1899—F. W. Lambelle     | 1907—H. M. Levinson    |
| 1900 { A. Parkin        | 1908—C. F. M. Saint    |
| F. R. Scott             | 1909—E. C. Braithwaite |
| 1901—J. B. Waters       | 1910—S. Littlewood     |
| 1902—John Cooper, B.Sc. | 1911—J. H. Barclay     |
| 1903—G. E. Lloyd        | 1912—H. G. Dodd        |
| 1904—A. B. Raffie       | 1913—H. Fairclough     |

### Turnbull Prize.

The fellow students and friends of the late William Turnbull, M.B., B.S., Demonstrator of Anatomy in the College from 1895 to 1903, to show their appreciation of his ability as a teacher and to perpetuate his memory, contributed a sum of money by means of which a memorial tablet has been placed in the College and a prize and medal termed the "Turnbull Prize" have been instituted.

#### REGULATIONS.

The prize and medal will be given for "Surface Anatomy," and may be competed for by students at the end of their second Epiphany term.

*Prizemen.*

1907—Isaac Bainbridge  
 1908—No Award  
 1909—T. C. Storey  
 1910—G. S. Woodman

1911—F. J. Natrass  
 1912—W. Herbertson, B.Sc.  
 1913—A. E. Raine

**Outterson-Wood Prize.**

Dr. T. OUTTERSON-WOOD, formerly a Lecturer on Psychological Medicine in the College, presented in 1913 the sum of £250 to found a prize in Psychological Medicine.

**REGULATIONS.**

The prize is awarded at the end of Easter term to the full student who obtains the highest marks in the class examination on Psychological Medicine.

**College Prizes.**

In connexion with each of the courses of lectures, etc., prizes are awarded at the end of the term or terms in which the lectures are given, to those students who pass the best examination in the subjects lectured on.

The prizes will consist of books. The prize in each class will be awarded to the student who obtains the highest marks in the class examination, provided that he receive not less than 80 per cent. of the marks obtainable.

Students who have attended a first-year's course only, are eligible for the prizes in the junior classes of Anatomy and Dissections, and in Chemistry, Physics, practical Chemistry, practical Physics, and Biology; second-year students in the classes of Physiology, practical Physiology and practical Histology, and in the senior classes of Anatomy and Dissections; third year students in the classes of Materia Medica, Medical Jurisprudence, Public Health, and Pathology and Bacteriology; fourth year students in the classes of Midwifery and Ophthalmology; fourth or fifth year students in the classes of Medicine, Surgery, Applied Anatomy and Therapeutics, and fifth year students in the classes of Operative Surgery, Psychology, Diseases of children, Diseases of the throat, nose and ear, and Diseases of the skin.

Students can only sit for these examinations at the end of the term or terms in which the class has been attended. Students, after attending a second course of Lectures, will not be allowed to compete for these Prizes, except in Medicine and Surgery.

Honours will also be awarded as follows: First Class Honours corresponding to marks of 80 per cent. and upwards; Second Class Honours to marks of from 75 to 80 per cent.; and Third Class Honours to marks of from 70 to 75 per cent.

*Prizemen for the academic year 1912-13.*

|                                              |     |     |       |                                  |
|----------------------------------------------|-----|-----|-------|----------------------------------|
| Chemistry                                    | ... | ... | ...   | M. J. Erdberg.                   |
| Practical chemistry                          | ... | ... | ...   | M. J. Erdberg.                   |
| Physics                                      | ... | ... | ...   | No Award.                        |
| Practical physics                            | ... | ... | ...   | W. T. Thompson.                  |
| Biology                                      | ... | ... | ...   | No Award.                        |
| Anatomy (junior division)                    | ... | ... | ...   | M. J. Erdberg.                   |
| Dissections (junior division)                | ... | ... | ...   | M. J. Erdberg.                   |
| Anatomy (senior division)                    | ... | ... | ...   | J. Gilmour.                      |
| Dissections (senior division)                | ... | ... | ...   | J. Brunwell.                     |
| Anatomy (applied)                            | ... | ... | ...   | F. J. Nattrass.                  |
| Physiology                                   | ... | ... | ...   | J. A. Charles.                   |
| Practical physiology                         | ... | ... | and } | W. O. F. Sinclair.               |
| physiological chemistry                      | ... | ... | ...   |                                  |
| Practical histology                          | ... | ... | ...   | G. A. Clark.                     |
| Pathology and bacteriology                   | ... | ... | ...   | No Award.                        |
| Materia medica                               | ... | ... | ...   | No Award.                        |
| Public health                                | ... | ... | ...   | E. J. Tyrrell.                   |
| Medical jurisprudence                        | ... | ... | ...   | C. H. Cuff.                      |
| Medicine                                     | ... | ... | ...   | No Award.                        |
| Psychological medicine                       | ... | ... | ...   | Evelyn Ritson.                   |
| Surgery                                      | ... | ... | ...   | No Award.                        |
| Operative surgery                            | ... | ... | ...   | No Award.                        |
| Midwifery and diseases of women and children | ... | ... | of }  | W. E. R. Saunders.               |
|                                              | ... | ... | ...   |                                  |
| Ophthalmology                                | ... | ... | ...   | W. E. R. Saunders.               |
| Therapeutics                                 | ... | ... | ...   | { J. E. Measham.<br>F. Metcalfe. |
|                                              | ... | ... | ...   |                                  |

### Medal.

A gold medal is awarded every year to the candidate who presents the best essay for the degree of M.D., provided that the essay is judged to be of sufficient merit.

*Medallists.*

- |                               |                                   |
|-------------------------------|-----------------------------------|
| 1883. Frederick William East. | 1899. John Peel Sparks.           |
| 1884. William Robinson.       | 1900. Gilbert Smith.              |
| 1885. Frederick Spicer.       | 1901. Bertram Crossfield Stevens. |
| 1886. John Valentine Salvage. | 1902. Henry Smurthwaite.          |
| 1887. Charles Couper Cripps.  | 1903. R. Tilbury Brown.           |
| 1888. J. P. Williams-Freeman. | 1904. Alfred Parkin.              |
| 1889. Fred W. Edridge-Green.  | 1905. Alfred Henry Proctor.       |
| 1890. William Baigent.        | 1906. William Simpson.            |
| 1891. Louis Robinson.         | 1907. Ernest Charles Young.       |
| 1892. John Francis Johns.     | 1908. John Cuthbert Pearce.       |
| 1893. Wilfred James Hadley.   | 1909. Vincent Edgar Badcock.      |
| 1894. G. J. Crawford Thomson. | 1910. Stanley Robson.             |
| 1895. Thomas Beattie.         | 1911. Horsley Drummond.           |
| 1896. Robert Alfred Bolam.    | 1912. Marcus Sinclair Paterson.   |
| 1897. Frederick Robson.       | 1913. Leonard Foster Browne.      |
| 1898. Fred Septimus Walker.   |                                   |

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The Council reserves the right of withholding any scholarship or prize when a satisfactory degree of proficiency is not shown at the examinations, and no scholarship, medal, or prize can be competed for by any student to whom it has already been awarded in a previous year.

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## REGULATIONS FOR THE DEGREES IN MEDICINE, SURGERY AND HYGIENE, THE DIPLOMAS IN PUBLIC HEALTH AND PSYCHIATRY, AND THE LICENCE IN DENTAL SURGERY.

The University of Durham grants degrees in Medicine, Surgery and Hygiene (viz. :—Bachelor of Medicine, Doctor of Medicine, Bachelor of Surgery, Master of Surgery, Bachelor of Hygiene, and Doctor of Hygiene), diplomas in Public Health and Psychiatry and a licence in Dental Surgery. These are open to men and women.

A student entering on a course of study for a degree in Medicine and Surgery is required—

- (a) To pass the necessary subjects of the Matriculation examination (p. 27 *et seq.*) or furnish proof that he has passed an equivalent examination (pp. 30, 31).

Having passed one of the foregoing examinations, the student should, at the commencement of Michaelmas term, enter his name on the register of the College and pay the necessary fees (p. 118 *et seq.*).

- (b) To register as a medical student on the books of the General Medical Council.

The student should forward to the Registrar of the General Medical Council, 299 Oxford Street, London, W.:—

- (1) A form of application for registration, filled up according to the printed directions attached thereto, together with
- (2) A certificate of having begun medical study.
- (3) A certificate of having passed the registration examination, and
- (4) A certificate of age.

(No person will be registered as a medical student who has not attained the age of 16 years.)

Unless the student enter his name on the register of the College, and forward the necessary papers (1, 2, 3 and

4, above-named) to the Registrar of the General Medical Council within *fifteen* days from the commencement of Michaelmas term, his course of study for that term will not be recognized.

Attendance upon medical lectures, or any medical study previous to this last-named registration (*b*) is not recognized.

The student, when registered by the General Medical Council, is considered to have commenced his professional education, of which the curriculum is a period of *bonâ fide* study during not less than five years.

The University of Durham requires that one, at least, of the five years of professional education shall be spent in attendance at the College of Medicine, Newcastle-upon-Tyne. During the year so spent, the student must attend at least two courses of lectures in the Winter Session and two in the Summer Session, together *with the class examinations* held in connexion with those courses, and must also attend medical and surgical hospital practice and clinical lectures on Medicine and Surgery at the Royal Victoria Infirmary. [First and second year students (dating from registration) are not required to comply with the regulation regarding attendance on hospital practice.] Students may fulfil this portion of the curriculum at any time before they present themselves for the final examination for the degree. They may spend the other four years of the curriculum either at Newcastle-upon-Tyne, or at one or more of the medical schools recognized by the University.

The laboratory courses in Chemistry and Physics and Bacteriology, forming part of the curriculum for the degree of Bachelor of Hygiene and for the diploma in Public Health, cannot be attended as courses in the curriculum for the degree of Bachelor of Medicine.

*Exemptions from the full curriculum :—*

- (i.) Graduates in Arts or Science of any University recognized by the General Medical Council who shall have spent a year in the study of Physics, Chemistry, and Biology, and have passed an examination in these subjects for the degrees in question, shall be held to have completed the first of the five years of medical study.



- (ii.) Students who hold the degree of Bachelor of Science of the University of Durham, and who have registered as medical students before the commencement of their second year in Science, will be allowed to reckon their second year's course in Science as one of the five years of medical study.

Attendance at the College of Medicine for one year is equivalent to one year of residence at Durham for the degree of B.A.

Students are recommended to commence their course of study *at the beginning of the Michaelmas term*, and to carry out the curriculum on some such plan as the following :—

| FIRST WINTER.                                                                                                                                                       | FIRST SUMMER.                                                                                                                                                                                                                       |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Anatomy and dissections.<br>Chemistry and practical chemistry.<br>Physics.<br>Biology and practical biology.                                                        | Chemistry and practical chemistry.<br>Practical physics.                                                                                                                                                                            |
| SECOND WINTER.                                                                                                                                                      | SECOND SUMMER.                                                                                                                                                                                                                      |
| Anatomy and dissections.<br>Physiology, practical physiology and histology.                                                                                         | Practical histology.                                                                                                                                                                                                                |
| THIRD WINTER.                                                                                                                                                       | THIRD SUMMER.                                                                                                                                                                                                                       |
| Public health.<br>Pathology and practical pathology.<br>Bacteriology and practical bacteriology.<br>Hospital practice, clinical lectures and Hospital appointments. | Pathology and practical pathology.<br>Bacteriology and practical bacteriology.<br>Materia Medica, pharmacology and practical pharmacy.<br>Medical jurisprudence.<br>Hospital practice, clinical lectures and Hospital appointments. |
| FOURTH WINTER.                                                                                                                                                      | FOURTH SUMMER.                                                                                                                                                                                                                      |
| Medicine.<br>Surgery.<br>Midwifery and gynaecology.<br>Applied anatomy.<br>Hospital practice, clinical lectures and Hospital appointments.                          | Therapeutics.<br>Ophthalmology.<br>Practical midwifery.<br>Hospital practice, clinical lectures and Hospital appointments.                                                                                                          |



## FIFTH WINTER.

Medicine.  
 Surgery.  
 Diseases of children.  
 Diseases of the skin.  
 Diseases of the throat, nose and ear.  
 Applied anatomy (if not previously attended).  
 Infectious diseases.  
 Practical midwifery (if not previously attended).  
 Hospital practice, clinical lectures and Hospital appointments.

## FIFTH SUMMER.

Therapeutics (if not previously attended).  
 Operative surgery.  
 Psychological medicine.  
 Hospital practice, clinical lectures and Hospital appointments.

Hospital practice must extend over three years, and the following curriculum is recommended :—

## 1st Hospital year.

- (a) Three months Out-patient dressing.
- (b) Three months assistant and clerk to the Pathologist.
- (c) Six months In-patient surgical dressing

or

Six months In-patient medical clerking.

## 2nd Hospital year.

- (a) Six months In-patient medical clerking

or

Six months In-patient surgical dressing.

- (b) One month assistant to the Anæsthetist.
- (c) Three months Out-patient clerking.

Each student so appointed will clerk for :—

- (1) One Out-patient Physician one morning each week.
- (2) One Out-patient Surgeon one morning each week.

## 3rd Hospital year.

- (a) Ward demonstrations in Medicine and Surgery.
- (b) Medical clinical lectures.
- (c) Surgical clinical lectures.

During the 3rd Hospital year the following *optional* appointments may be held :—

- (a) One month Assistant in the Skin department.
- (b) One month Assistant in the Gynæcological department.
- (c) Three months Assistant in the Ophthalmic department.
- (d) Three months Assistant in the Throat and Ear department.

## THE LICENCE IN DENTAL SURGERY.

A student desirous of entering on a course of study for the licence in Dental Surgery (L.D.S.) is required—

- (a) To pass one of the examinations recognized by the General Medical Council for purposes of registration.
- (b) To register as a dental student on the books of the General Medical Council.

A student can fulfil the following portion of the curriculum required for the licence in Dental Surgery of the University of Durham, at the College of Medicine, and the Royal Victoria Infirmary, Newcastle-upon-Tyne, viz. :—

|                                                           |              |          |
|-----------------------------------------------------------|--------------|----------|
| Anatomy                                                   | ... ..       | 2 terms. |
| Dissections                                               | ... ..       | 4 „      |
| Physiology                                                | ... ..       | 2 „      |
| Practical physiology                                      | ... ..       | 1 term.  |
| Practical histology                                       | ... ..       | 1 „      |
| Materia medica                                            | ... ..       | 1 „      |
| Dental bacteriology                                       | ... ..       | 3 terms. |
| Surgery, including the elements of                        | } 2 „        |          |
| surgical pathology                                        |              |          |
| Medicine, including the elements of                       | } 2 „        |          |
| general pathology                                         |              |          |
| Chemistry, with practical chemistry                       | 3            | „        |
| Physics, with practical physics                           | 3            | „        |
| Medical and surgical hospital                             | } 12 months. |          |
| practice with medical and sur-<br>gical clinical lectures |              |          |

The curriculum can be completed at the Newcastle-upon-Tyne Dental Hospital: particulars of this part may be obtained from Mr. J. T. Jameson, L.D.S., the Dean of the Dental Hospital, Newcastle-upon-Tyne.

The composition fee for the above courses of lectures, etc., at the College of Medicine, is £42 0s. 0d., in addition to which there is (a) a library fee of 15s. 0d., and (b) an annual fee of £2 12s. 6d., which covers the subscriptions to the Athletic Club, the Students' Medical Society and the College Gazette.

The fee for Hospital Practice, etc., at the Royal Victoria Infirmary is £15 15s. 0d., and an additional fee of £2 2s. 0d. a year, during the period of attendance on Hospital Practice, is payable to the Committee of the Infirmary. Particulars may be obtained on application to the Secretary of the College of Medicine.

## RULES AND REGULATIONS OF THE COLLEGE AND ROYAL VICTORIA INFIRMARY.

All students including those attending Hospital Practice or Clinical Lectures must sign their names in the College register at the beginning of the Michaelmas and Easter terms.

Students are required to be punctual and orderly in their attendance upon lectures and demonstrations, and to observe decorum in the College, Hospital, and elsewhere.

Regularity of attendance and orderly conduct at lectures and classes, together with attendance at the class examinations are necessary to secure certificates of attendance.

The following resolutions have been adopted by the Council, viz. :—

- (a) That a return be presented at the end of Epiphany term in each year by the Professor of Anatomy, giving the names of those students who have failed to present themselves for, or who have failed to pass their examinations within reasonable time, together with a report of their general conduct.
- (b) That if a student be known to be systematically neglecting his work at the College or Hospital, or fail to present himself for his examination within a reasonable time of the period at which in the ordinary course he might have presented himself, a report of the fact be sent by the Council to his parents or guardians, or person to whom the student may be responsible for his conduct.
- (c) Students systematically neglecting their work, or not complying with the regulations of the College, are liable to suspension.

Certificates and prizes will only be granted when the work and conduct of the student are satisfactory to the Council.

Students are required to make good, to the satisfaction of the Council, any damage or injury they may cause to the property of the College.

No specimens or preparations may be removed from the Museum, nor may any books or unbound journals lying on the tables of the Library or Museum be removed.

Students are required to wear academic dress at lectures delivered in the College, and at class and degree examinations.

No fee will be returned for any portion of the curriculum that a student may have forfeited by irregularity or misconduct.

Smoking is strictly prohibited inside the College buildings, except in the Dissecting room, Gymnasium, and Students' smoking room.

As evidence of diligence in every department of study at the Royal Victoria Infirmary, each student will be required to present for consideration a card signed by the member of the Honorary Staff in whose class he may have been or under whom he has held office.

A record of the appointments held by students at the Infirmary is kept, and this record will be considered when applications are made for post-graduate appointments.

Clerks and dressers must attend each morning at 9 a.m., and must leave the wards at 1 p.m. After this hour no clerk or dresser is allowed to be present in the wards without special permission from the House Physician or House Surgeon with whom he is associated.

Students holding appointments at the Infirmary must not be absent from duty without leave from the Dean, and must in addition have obtained consent from the House Physician or House Surgeon with whom they are associated.

After the completion of the operation lists in the morning, no student shall enter the operating theatres except in company with a member of the Honorary or Resident Staff.

No student, unless he holds an appointment, is allowed in any ward or department of the hospital except in company with a member of the Honorary or Resident Staff.

Strict punctuality at examinations is essential.

Any candidate copying or communicating with others during an examination will be dismissed from the examination and will be reported to the Vice-Chancellor and Senate.

Candidates are forbidden to make any enquiry of an Examiner as to the result of an examination. The Secretary of examinations is the only person authorized to give information regarding examinations.

The infringement of the above, or any other rules, which may from time to time be passed by the Council, renders a student liable to suspension or immediate dismissal from the College, and to the forfeiture of all fees, certificates, and privileges as a student of the College.

The Professor of Anatomy is specially empowered to see that the above rules, so far as they relate to the College, are observed.

Every student, by signing the College register, subscribes to the following undertaking, viz. :—

I, . . . . . , a student of the University of Durham College of Medicine, Newcastle-upon-Tyne, hereby undertake to comply with all rules and regulations of the College, and to conduct myself on all occasions in an orderly manner. I fully understand that I have no claim upon the Council of the College in respect of any fees paid by or due from me in case such fees are forfeited by any irregularity or misconduct on my part.

Every student shall in the presence of the Vice-Chancellor, or a Pro-Vice-Chancellor, sign the following declaration of obedience to the authorities of the University, viz. :—

I hereby promise to conform to the discipline of the University and to all statutes, regulations and rules in force for the time being, in so far as they concern me.

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## EXAMINATIONS.

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### THE DEGREE OF BACHELOR OF MEDICINE (M.B.).

There are four professional examinations for the degree of M.B., and these are held at the end of Epiphany and Easter terms.

The examinations must be taken in their proper order and each must be passed before the next can be proceeded with.

### FIRST EXAMINATION FOR THE DEGREE OF BACHELOR OF MEDICINE.

#### REGULATIONS.

#### 1.—Education.

Candidates must produce evidence that they have attended at a recognized school the following courses of instruction, viz. :—

|                                    |     |     |     |     |          |
|------------------------------------|-----|-----|-----|-----|----------|
| Anatomy                            | ... | ... | ... | ... | 2 terms. |
| Dissections                        | ... | ... | ... | ... | 2 „      |
| Chemistry with practical chemistry | ... | ... | ... | ... | 3 „      |
| Physics with practical physics     | ... | ... | ... | ... | 3 „      |
| Biology                            | ... | ... | ... | ... | 2 „      |

The Universities, University Colleges, and the Schools of Medicine of Great Britain and Ireland are recognized by the University for the teaching of chemistry, physics, and biology.

#### *Exemptions from the first M.B. examination.*

- 1.—Candidates who qualify for the degree of B.Sc. will be allowed to count their studies and examinations in physics, chemistry and natural history as studies and examinations for the first examination for the degree of M.B.



- 2.—Candidates who have completed in a University of the United Kingdom a course of study and passed an examination in botany, zoology, chemistry and physics qualifying for a degree in science, shall be exempted from study and examination in these subjects.
- 3.—Candidates who have completed in a University of the United Kingdom a course of study and passed an examination in botany, zoology, chemistry and physics, qualifying for a degree in medicine, *may* be exempted from study and examination in such subjects; and the board of the Faculty of Medicine shall have authority to determine in any particular case whether a course of study pursued or an examination passed by a candidate may be accepted for the purpose of the above regulation, and may delegate this authority from time to time to a committee approved by Senate, consisting of not less than five members of the board.

## II.—Examination.

- 1.—*The subjects of the first professional examination* are:—Elementary anatomy, biology, chemistry, and physics.

The examination consists of two parts, viz. :—

- (a) Elementary anatomy, biology,
- (b) Chemistry, physics,

and candidates may present themselves for either part separately, or for both together.

### 2.—*Syllabus of the examination.*

#### (1) Elementary Anatomy—

The bones, joints and ligaments of the body. The muscles of the extremities.

#### (2) Chemistry—

- (a) General characteristics of chemical action. Conditions under which chemical changes take place. Difference between elementary and compound substances. Explanation of chemical symbols, formulæ and equations. Calculation of quantities of materials necessary to produce or resulting from given chemical reactions.



Characteristics of acids, bases and salts. Nomenclature. Laws of chemical combination. Combination of gases by volume. The atomic theory. Molecules and molecular weights. Avogadro's hypothesis. The general properties of gases.

The non-metallic elements and the compounds they form. The atmosphere; combustion; ventilation. The general properties of the more common metals and their compounds.

(b) Organic chemistry—

Differences between organic and inorganic compounds. Methods of determining the composition, molecular weights and constitution of compounds.

The hydrocarbons and their derivatives, more especially their oxidation products—alcohols, aldehydes, ketones and acids. The polyhydric alcohols. Glycerol and the fats. The carbohydrates.

Benzene and its more important derivatives.

The simpler chemical constituents of vegetable and animal organisms.

(c) Practical Chemistry—

The preparation and qualitative analysis of simple salts. Simple quantitative experiments, *e.g.*, the determination of equivalents; volumetric analysis.

The preparation and reactions of the more important organic compounds.

(3) Physics—

(a) Experimental Mechanics—

Laws of motion considered experimentally, and simple applications. General properties of solids, liquids and gases treated in an elementary manner.

(b) Heat—

Thermometry. Coefficients of expansion. Calorimetry. Change of state. Hygrometry. Conduction, convection, and radiation.

(c) Magnetism and Electricity—

Simple Phenomena in magnetism. Batteries: their constitution and use. The magnetic, chemical, and heating effects of the electric current. Ohm's law. Simple phenomena of induced currents. Elementary phenomena in electrostatics.

## (d) Optics—

Propagation, reflection, and refraction of light. Formation of images by mirrors and lenses. The prism.

## (e) Practical Physics—

Candidates will be expected to be familiar with the use of simple physical instruments, and to perform simple experiments in experimental mechanics, heat, electricity, and optics.

## (4) Elementary Biology—

- (a) The distinctive properties of living and non-living bodies.—The general conditions favourable and unfavourable to life.

The structure, growth, and chemical composition of the cell-wall, protoplasm, and nucleus. The properties of protoplasm. The growth, modification, and division of cells. Formation of tissues. Division of labour. The elements of vegetable Physiology treated experimentally.

- (b) The differences between animals and plants.

- (c) The structure, morphology, physiology, and life-histories of:—*Saccharomyces* (Yeast); *Bacterium*; *Penicillium*; *Pythium*; *Mucor*; *Claviceps*; *Hamatococcus*; *Spirogyra*; *Fucus* (Brown Seaweed); Fermentation; Putrefaction.

- (d) The anatomy, morphology, and physiology of the flowering plant as illustrated by a consideration of the structure and functions of stem, leaf, and root. The various parts of the flower and their functions. Fertilization. Germination of seeds.

- (e) The general characteristics of invertebrate and vertebrate Animals.

- (f) The morphology, physiology, and life-histories of the Invertebrata as exemplified by the study of *Amæba*, *Vorticella*, *Hydra*, *Lumbricus* (Earthworm), *Tænia*, *Nephrops* (Norway lobster).

- (g) The morphology and physiology of the Vertebrata as exemplified by the study of *Amphioxus*, *Raia* (Skate), *Rana* (Frog), and *Lepus* (Rabbit).

- (h) The elementary principles of animal embryology as illustrated by a study of the general developmental history of *Amphioxus*, *Rana* and *Gallus*.

(i) *Practical Biology*—

Candidates will be required to show a practical acquaintance with the animals and plants mentioned above; they will be expected to make dissections of the animals and expose the various important organs, and to make preparations to illustrate the structure of the various plants. Candidates are required to bring a microscope, razor and dissecting instruments for this examination.

3.—*Fees*:—The fee for the first professional examination is £5. For re-examination: In both parts, £2; in one part, £1.

A candidate wishing to present himself for examination must give at least *twenty-eight days'* notice to Professor Howden, Secretary of the University of Durham College of Medicine, Newcastle-upon-Tyne, and must, at the same time, send the examination fee and the necessary certificates.

Candidates who have entered for the examination may withdraw their names upon giving the Secretary nine days' notice: and in that case may enter *either* at the next examination *or* the next but one (but not afterwards) without further payment.

4.—*The dates of the first professional examination in 1915 will be*:—March 15th, June 21st.

## SECOND EXAMINATION FOR THE DEGREE OF BACHELOR OF MEDICINE.

### I.—Education.

Candidates must produce evidence that they have attended the following courses of instruction, viz.:—

|                                           |     |     |     |     |          |
|-------------------------------------------|-----|-----|-----|-----|----------|
| (a) Anatomy                               | ... | ... | ... | ... | 2 terms. |
| (b) Dissections                           | ... | ... | ... | ... | 2 „      |
| (c) Physiology                            | ... | ... | ... | ... | 2 „      |
| (d) Practical physiology and histology... | ... | ... | ... | ... | 3 „      |

*Exemption*.—Candidates for the degree of Bachelor of Medicine who have completed in the University the

course of study in Physiology required for the degree of Bachelor of Science, and who have qualified for that degree with Physiology as one of the subjects of the final examination, shall be exempted from examination in this subject.

## II.—Examination.

1.—*The subjects of the second professional examination* are :—Anatomy and Physiology.

2.—*Syllabus of the examination* :—

### (1) Anatomy—

In addition to a general knowledge of the subject as tested by the written part of the examination, the candidate will be required to make a dissection on the recent subject. In the *viva voce* examination he will also be required to recognize parts on recent or prepared dissections, and to answer questions on bones, joints, etc. He must also have a knowledge of the more important facts regarding the development of the various systems.

### (2) Physiology—

In addition to the written paper, the candidate will be subjected to a practical examination comprising—

- (a) In chemical physiology, identification of commonly occurring proximate principles and demonstration of properties of body secretions.
- (b) In experimental physiology, the performance of simple experiments and explanation of use of apparatus.
- (c) In histology, methods of preparation in common use, with recognition of specimens under the microscope.

3. — *Fees.*—The fee for the second professional examination is £5.

For re-examination, £2.

A candidate wishing to present himself for examination must give at least *twenty-eight days'* notice to Professor Howden, Secretary of the University of Durham College of Medicine, Newcastle-upon-Tyne, and must, at the same time, send the examination fee and the necessary certificates.

Candidates who have entered for the examination may withdraw their names upon giving the Secretary nine days' notice; and in that case may enter *either* at the next examination *or* the next but one (but not afterwards) without further payment.

4.—*The dates of the second professional examination in 1915 will be :—*March 15th, June 21st.

### THIRD EXAMINATION FOR THE DEGREE OF BACHELOR OF MEDICINE.

#### I.—Education.

Candidates must produce evidence that they have attended the following courses of instruction, viz.:—

|                                         |        |          |
|-----------------------------------------|--------|----------|
| Pathology and practical pathology       | ...    | 3 terms. |
| Bacteriology and practical bacteriology | ...    | 3 „      |
| Materia medica and pharmacology         | ...    | 1 term.  |
| Practical pharmacy                      | ... .. | 1 „      |
| Public health                           | ... .. | 2 terms. |
| Medical jurisprudence                   | ... .. | 1 term.  |

#### II.—Examination.

1.—*The subjects of the third professional examination are :—*Materia medica, pharmacology and pharmacy; public health; medical jurisprudence; pathology and elementary bacteriology.

The examination consists of two parts, viz.:—

- (a) Pathology and elementary bacteriology.
- (β) Materia medica, public health and medical jurisprudence;

and candidates may present themselves for either part of the examination, separately, or for both together, at their option.

2.—*Syllabus of the third examination :—*

(1) (a) Pathology—

In the written examination the candidate's knowledge of the principles of general and special pathology will be tested. In addition to the

*vivâ voce* examination, a practical examination will be conducted in which the candidate will be tested in elementary pathological methods, and in the description of naked eye and microscopical pathological specimens. The candidate will also be expected to be familiar with the mode of conduction of post-mortem examinations.

(b) Elementary Bacteriology—

Candidates will be expected to possess a competent knowledge of bacteriology and parasitology, in so far as the latter are applicable to disease in man.

In addition to the written and *vivâ voce* examination, candidates will be examined practically in the elements of bacteriological technique.

(2) Materia Medica, Pharmacology, and Pharmacy—

The action of drugs and their active principles on the various tissues of the body. The physical and chemical characteristics of drugs derived from the inorganic kingdom, and of the active principles of drugs derived from the organic kingdom. The official preparations of the more important drugs. The essential ingredients in the more important preparations and the proportion of these ingredients. The ordinary doses of the principal drugs and their preparations.

(3) Public Health—

(a) *Sanitary Medicine*.—General mortality, and its principal features (statistical and other). Zymotic diseases. Epidemic and endemic diseases. Epizootic and enzootic diseases, and their relation to human diseases. Hygiene in relation to meteorological and topographical conditions, climate, air, water, food, clothing, occupation.

(b) *Practical Hygiene*.—The dwelling (site, foundations, structure, etc.). Water supply, ventilation and cubic space, warming and lighting. Conveniences. Drains, sewers. Refuse disposal, destructors. Sewage disposal and treatment. Sewerage works. Hospitals for infectious diseases. Disinfection. Vaccination.

(4) Medical Jurisprudence—

Law affecting the medical profession. Obligations of medical men as witnesses. Forms of evidence. Courts. Dying declarations. Wills. Certificates of death. Malapraxis. Identity. Signs of death.



Modes of death. Wounds. Assaults. Murder. Manslaughter. Homicide. Pregnancy. Delivery. Birth. Sex. Fœticide. Infanticide. Concealment of birth. Rape. Impotency. Sterility. Legitimacy. Inheritance. Survivorship. Life Assurance. Accident assurance. Compensation for injuries. Medico-legal post-mortem examinations. Examination of stains and fabrics. General principles of toxicology. The mode of action, symptoms and treatment of the more important poisons.

3.—*Fees.*—The fee for the third professional examination is £5.

For re-examination : in both parts, £2 ; in one part, £1.

A candidate wishing to present himself for examination must give *at least twenty-eight days' notice* to Professor Howden, Secretary of the University of Durham College of Medicine, Newcastle-upon-Tyne, and must, at the same time, send the examination fee and the necessary certificates.

A candidate who has entered for the examination may withdraw his name upon giving the Secretary nine days' notice ; and in that case may enter *either* at the next examination *or* at the next but one (but not afterwards) without further payment.

4.—*The dates of the third professional examination in 1915 will be :—*March 18th, June 21st.

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## FOURTH (FINAL) EXAMINATION FOR THE DEGREE OF BACHELOR OF MEDICINE.

### 1.—Education.

A candidate for this examination must not be less than 21 years of age and must produce certificates of good moral conduct, and of attendance on the following courses of instruction, viz. :—

|                                                               |        |          |
|---------------------------------------------------------------|--------|----------|
| Medicine                                                      | ... .. | 4 terms. |
| Psychological medicine and clinical<br>psychological medicine | ... .. | 1 term.  |



|                                                                                                                  |     |     |                    |
|------------------------------------------------------------------------------------------------------------------|-----|-----|--------------------|
| Surgery                                                                                                          | ... | ... | 4 terms.           |
| Midwifery and gynæcology                                                                                         | ... | ... | 2 „                |
| Therapeutics                                                                                                     | ... | ... | 1 term.            |
| Ophthalmology                                                                                                    | ... | ... | 1 „                |
| Diseases of children                                                                                             | ... | ... | 1 „                |
| Diseases of the throat, nose and ear                                                                             | ... | ... | 1 „                |
| Diseases of the skin                                                                                             | ... | ... | 1 „                |
| *Medical and surgical hospital practice                                                                          | }   |     | 3 winter sessions. |
|                                                                                                                  |     |     | 2 summer „         |
| Medical and surgical clinical lectures                                                                           |     |     | 2 winter „         |
|                                                                                                                  | }   |     | 2 summer „         |
| In-patient medical clerking                                                                                      |     |     | 6 months.          |
| In-patient surgical dressing                                                                                     | ... | ... | 6 „                |
| Out-patient clerking                                                                                             | ... | ... | 3 „                |
| Out-patient dressing                                                                                             | ... | ... | 3 „                |
| Assistant in the ophthalmic department or in the throat, nose and ear department                                 | ... | ... | 3 „                |
| Assistant and clerk in the post-mortem room, with attendance at not less than 25 <i>post-mortem</i> examinations | ... | ... | 3 „                |
| Assistant to the anæsthetist                                                                                     | ... | ... | 1 month.           |
| Assistant in the skin department or in the gynæcological department                                              | ... | ... | 1 „                |
| Infectious diseases                                                                                              | ... | ... | 3 months.          |
| Vaccination (certified by a licenced teacher).                                                                   |     |     |                    |
| Personal conduction of not less than 20 cases of midwifery.                                                      |     |     |                    |

## II.—Examination.

1.—*The subjects of the fourth professional examination are :—*

- (1) Medicine, clinical medicine and psychological medicine.
- (2) Surgery and clinical surgery.
- (3) Midwifery, gynæcology and clinical gynæcology.
- (4) Therapeutics.

\* Three months resident clinical clerkship in any County or Borough Asylum may be substituted for three months attendance on hospital practice.

- (5) Diseases of the throat, nose and ear ; diseases of the skin ; diseases of children ; and diseases of the eye.

2.—*Fees*.—The fee for the fourth professional examination is £10.

For re-examination, £4.

A candidate wishing to present himself for examination must give at least *twenty-eight days' notice* to Professor Howden, Secretary of the University of Durham College of Medicine, Newcastle-upon-Tyne, and must, at the same time, send the examination fee and the necessary certificates.

Candidates who have entered for the examination may withdraw their names upon giving the Secretary nine days' notice ; and in that case may enter *either* at the next examination *or* the next but one (but not afterwards) without further payment.

3.—*The dates of the fourth professional examination in 1915 will be* :—March 18th, June 10th.

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# THE DEGREE OF DOCTOR OF MEDICINE (M.D.).

## REGULATIONS.

### I.—Education.

1.—The candidate must have obtained the degree of Bachelor of Medicine in the University, and must have been engaged for at least two years subsequently to the date of admission to the degree in attendance on the practice of a recognised hospital, or in the military or naval Services, or in medical and surgical practice.

2.—He must be not less than 24 years of age.

3.—He must satisfy the University as to his knowledge of Greek or German.

In the event of his not having passed in either of these subjects at the Matriculation examination he must pass in one of them at one of the ordinary Matriculation examinations of the Newcastle division of the University.

4.—The candidate must present an essay which has been prepared entirely by himself, based on original research or observation, on some medical subject selected by himself and approved by the Professor of Medicine, and must pass an examination thereon, and must be prepared to answer questions on the other subjects of his curriculum so far as they are related to the subject of the essay.

The subject of the essay must, in the first instance, be submitted by letter to the Professor of Medicine for his approval.

The essay must be signed by the candidate, and must be received by the Professor of Medicine *six weeks* before the date of examination.

The successful candidate will be permitted to publish his essay, but the original MS. will be retained by the Faculty of Medicine.

The candidate must use for his essay, thin, strong, cream-wove half-sheet foolscap, size 13 ins. by 8 ins., with a margin on the left-hand side one inch and a half in breadth, and the essay must be type-written on one side of the paper only. The essay should not exceed thirty pages in length.

## II.—Examination.

- 1.—Examination on the subject of an essay written by the candidate, and on the other subjects of the curriculum so far as they are related to the subject of the essay.

Ten days' notice will be given to the candidate as to whether his essay is deemed of sufficient merit or not. If the essay is not of sufficient merit, the candidate will not be required to attend for oral examination.

- 2.—*Fees*.—The fee for the examination for the degree of Doctor of Medicine is £5.

For re-examination, £2.

The fee must be forwarded to Professor Howden, Secretary of the University of Durham College of Medicine, Newcastle-upon-Tyne, *six weeks* previously to the examination, when the candidate must intimate his intention of presenting himself for examination and must, in addition, forward the necessary certificate as to age and a certificate of having passed in Greek or German.

Candidates who have entered for the examination may withdraw their names upon giving the Secretary nine days' notice; and in that case may enter *either* at the next examination *or* the next but one (but not afterwards) without further payment.

- 3.—*The dates of the examinations for the degree of Doctor of Medicine in 1915 will be*:—March 24th, June 16th.

### THE DEGREE OF DOCTOR OF MEDICINE *in absentia*.

Arrangements have been made by which Bachelors of Medicine resident abroad, and wishing to proceed to the M.D. degree may do so under the following regulations, and may have the degree conferred on them *in absentia*:—

- 1.—The subject of the essay must, in the first instance, be submitted to the Professor of Medicine for his approval.

- 2.—A sworn declaration, made before a commissioner for oaths and signed by the candidate, must accompany the essay, to the effect that the work has been done and the essay prepared entirely by the candidate.
  - 3.—The essay must reach the Professor of Medicine at least *six weeks* before the date of the examination.
  - 4.—The essay must be approved by the Examiners.
  - 5.—Such candidates, if successful, must pay the sum of £3 0s. 0d. in addition to the ordinary degree fee of £6 6s. 0d.
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## THE DEGREE OF DOCTOR OF MEDICINE, FOR MEDICAL PRACTITIONERS OF FIFTEEN YEARS' STANDING, WITHOUT RESIDENCE.

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The University of Durham, with the view of affording to practitioners of medicine an opportunity of obtaining the degree of Doctor of Medicine, has instituted a special examination for that purpose.

### REGULATIONS.

1.—The candidate shall be registered by the General Council of Medical Education and Registration of the United Kingdom.

2.—The candidate shall have been in the active practice of his profession for fifteen years as a qualified practitioner.

3.—The candidate shall not be under 40 years of age, and shall be required to produce evidence to this effect.

4.—The candidate shall produce certificates of moral character from three registered members of the medical profession.

### EXAMINATIONS.

A.—If the candidate shall not have passed previously to his professional examination (in virtue of which he has been placed on the register) an examination in Arts, he shall be required to pass an examination in Classics and Mathematics.

The subjects of this examination shall be :—

1.—An English essay. (A short essay on some subject to be specified at the time of the examination.)

3.—Arithmetic.

3.—Euclid—Books i. and ii.

4.—Latin—Translation from Virgil's *Æneid*, books i. and ii., with grammatical questions.

5.—One of the following subjects :—

- i. Greek—Translation from Xenophon's *Memorabilia*, books i. and ii., with grammatical questions.
- ii. French—Translations from Voltaire's *Charles XII.*, with grammatical questions.
- iii. German—Translation from Goethe's *Dichtung und Wahrheit*, book i., with grammatical questions.
- iv. Elements of Mechanics, Pneumatics, and Hydrostatics.
- v. Some treatise on moral, political, or metaphysical philosophy.

If the candidate shall have passed, previously to his professional examination (in virtue of which he has been placed on the register), a preliminary examination, he shall be required to translate into English, passages from one of the following Latin texts :—

Cæsar—*De Bello Gallico* (first three books).

Virgil—First three books of the *Æneid*.

Celsus—First three books.

The candidate may choose any one of the three above-named authors.

The classical may be taken separately from the medical portion of the examination.

B.—The candidate shall be required to pass an examination in the following subjects :—

- i. Principles and practice of Medicine, Clinical Medicine, Psychological Medicine, Hygiene and Therapeutics.
- ii. Principles and practice of Surgery and Clinical Surgery.
- iii. Midwifery and Diseases of Women and Children.
- iv. Pathology—Medical and Surgical.
- v. Anatomy—Medical and Surgical.
- vi. Medical Jurisprudence and Toxicology.

Candidates are examined (1) by written papers (2) clinically and (3) *vivâ voce*.



Natives of India will be placed on the same footing as natives of Great Britain, with the following variations:—Candidates who are 40 years of age, and have been engaged in actual practice for fifteen years, can proceed to the M.D. degree examination for practitioners in accordance with these regulations, provided they bring evidence from one of the Indian Universities that they have passed within one year of presenting themselves for the examination for the practitioners' degree at the University of Durham, an examination in Latin.

*Fees.*—The fee for the examination and the degree is £52 10s. 0d. If a candidate shall fail to satisfy the Examiners, the sum of £21 0s. 0d. shall be retained; but if he shall again offer himself for the examination, a fee of £42 0s. 0d. must be paid. For the classical portion the fee is £10 10s. 0d., which is deducted subsequently from the full fee of £52 10s. 0d. If a candidate fail to satisfy the Examiners in the classical portion of the examination, a fee of £5 5s. 0d. will be required for every subsequent examination.

Candidates who intend to present themselves for examination are required to forward their names, together with the fee and the before-mentioned certificates, to Professor Howden, Secretary of the University of Durham College of Medicine, Newcastle-upon-Tyne, *at least 28 days* before the commencement of the examination.

*The dates of examination in 1915 will be:—*March 18th, June 10th.

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## THE DEGREE OF BACHELOR OF SURGERY (B.S.).

### REGULATIONS.

#### I.—Education.

1.—The candidate must have passed the final examination for the degree of M.B. in the University.

2.—He must have attended a course of lectures on operative surgery and a course of lectures on applied anatomy.

#### II.—Examination.

1.—*The subjects of examination will be :—*

|                      |                       |
|----------------------|-----------------------|
| Surgical operations. | Surgical instruments. |
| Surgical anatomy.    | Splints and bandages. |

The candidate will be required to perform operations on the cadaver.

2.—*Fees :—*The fee for examination for the degree of Bachelor of Surgery is £5.

For re-examination, £2.

A candidate wishing to present himself for examination must give at least *twenty-eight days' notice* to Professor Howden, Secretary of the University of Durham College of Medicine, Newcastle-upon-Tyne, and must at the same time send the examination fee and the necessary certificates.

Candidates who have entered for the examination may withdraw their names upon giving the Secretary nine days' notice ; and in that case may enter *either* at the next examination *or* the next but one (but not afterwards) without further payment.

3.—*The dates of the examinations for the degree of Bachelor of Surgery in 1915 will be :—*March 24th, June 16th.

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## THE DEGREE OF MASTER OF SURGERY (M.S.).

### REGULATIONS.

#### I.—Education.

1.—The candidate must have obtained the degree of Bachelor of Surgery in the University and must have been engaged for at least two years subsequently to the date of admission to that degree in the practice of a recognized hospital, or in the naval or military Services, or in medical or surgical practice.

2.—He must be not less than 24 years of age.

3.—He must satisfy the University as to his knowledge of Greek or German.

If he has not already satisfied the Matriculation Examiners in either Greek or German he must pass in one of these subjects at one of the ordinary Matriculation examinations of the Newcastle Division of the University.

#### II. Examination.

1.—*The subjects of examination will be :*

|                   |                      |
|-------------------|----------------------|
| Surgery.          | Surgical pathology.  |
| Surgical anatomy. | Surgical operations. |
| Clinical surgery. |                      |

2.—*Fees* :—The fee for examination for the degree of Master of Surgery is £5.

For re-examination, £2.

A candidate wishing to present himself for examination must give at least *twenty-eight days' notice* to Professor Howden, Secretary of the University of Durham College of Medicine, Newcastle-upon-Tyne, and must at the same time send the examination fee and the necessary certificates.

Candidates who have entered for the examination may withdraw their names upon giving the Secretary nine days' notice ; and in that case may enter *either* at the next examination *or* the next but one (but not afterwards) without further payment.

3.—*The dates of the examinations for the degree of Master of Surgery in 1915 will be* :—March 18th, June 10th.

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# THE DEGREE OF BACHELOR OF HYGIENE (B.H.Y.).

## REGULATIONS.

### I.—Education.

1.—The candidate must be a registered medical practitioner and a graduate in medicine of a recognized University.

2.—He must be not less than 22 years of age.

3.—A period of at least twelve months shall have elapsed since the candidate obtained his first registrable qualification in medicine, surgery, and midwifery, before he presents himself for examination.

4.—He shall have spent six months of professional study subsequently to the attainment of a first registrable qualification in medicine, surgery, and midwifery, in attendance at the University of Durham Colleges in Newcastle-upon-Tyne, in the following manner:—

(a) Three months' course of lectures on Comparative Pathology with practical work in the bacteriological laboratory.

(b) Three months' practical instruction in the chemical and physical laboratories. This course must not run concurrently with the three months' course in Comparative Pathology and Bacteriology.

5.—The candidate shall produce satisfactory evidence—

#### *Either*

(1) That, after obtaining a registrable qualification he has during six months been diligently engaged in acquiring a practical knowledge of the duties, routine and special, of public health administration, under the personal supervision of—

(a) In England and Wales, the Medical Officer of Health of a county or of a single or combined sanitary district having a population of not less than 50,000, or a Medical Officer of Health devoting his whole time to public health work; or—

(b) In Scotland, a Medical Officer of Health of a county or counties, or of one or more districts having a population of not less than 30,000; or—

- (c) In Ireland, a Medical Superintendent Officer of Health of a district or districts having a population of not less than 30,000; or—
- (d) In the British Dominions outside the United Kingdom, a Medical Officer of Health of a sanitary district having a population of not less than 30,000, who himself holds a registrable diploma in Public Health; or—
- (e) A Medical Officer of Health who is also a teacher in the department of Public Health of a recognized medical school; or—
- (f) A Sanitary Staff Officer of the Royal Army Medical Corps having charge of an Army Corps, District, Command, or Division, recognized for this purpose by the General Medical Council; or—
- (g) An assistant Medical Officer of Health of a county or of a single sanitary district having a population of not less than 50,000, provided the Medical Officer of Health of the county or district in question permits the assistant Officer to give the necessary instruction and issue certificates.

*Note.*—The certificate for the above purpose must include testimony that the candidate has attended under the supervision of the person certifying on not less than 60 working days.

Provided that if the candidate has

(i.) produced satisfactory evidence that he has attended a course or courses of instruction in sanitary law, vital statistics, epidemiology, school hygiene, and other subjects bearing on Public Health administration, given by a teacher or teachers in the department of Public Health of a recognized medical school; or

(ii.) produced evidence that he has been a resident Medical Officer in a hospital for infectious diseases containing not less than 100 beds, during a period of three months,

the period during which he has been engaged in acquiring practical knowledge of his duties under this *Rule* may be reduced to three months, to include an attendance on at least 30 working days.

The following Districts and Commands have been recognized by the Council, viz.:—Aldershot; Salisbury Plain; Southern and South-Eastern; Western; Dublin and Belfast; Cork; Chatham and Woolwich; Home; Eastern; North-Eastern and North-Western; Scottish; Gibraltar; Malta. The following Indian divisions, viz.:—1st (Peshawar); 2nd (Rawalpindi); 3rd (Lahore); 4th (Quetta); 5th (Mhow); 6th (Poona); 7th (Meerut); 8th (Lucknow); 9th (Secunderabad); Burma.

Or

(2) That he has himself held for a period of not less than three years an appointment as Medical Officer of Health of a sanitary district within the British Dominions, and having a population of not less than 15,000.

6.—The candidate shall produce evidence that, after obtaining a registrable qualification, he has during three months attended at least twice weekly the practice of a Hospital for Infectious Diseases, at which he has received instruction in the methods of administration.

*Note* (1) Methods of administration shall include the methods of dealing with patients at their admission and discharge, as well as in the wards; and the medical superintendence of the hospital generally.

*Note* (2) In the case of a Medical Officer of the Royal Army Medical Corps a certificate from a Principal Medical Officer under whom he has served, stating that he has during a period of at least three months been diligently engaged in acquiring a practical knowledge of hospital administration in relation to infectious diseases, may be accepted as evidence under *Rule 6*.

7.—He must produce evidence that he has attended a course of lectures on Public Health.

## II.—Examination.

The examination is divided into two parts. Candidates may present themselves for either part separately: or both together, at their option.

The candidate will be examined in both parts by means of written papers, practical work, and *vivâ voce*.

### PART I.

#### 1.—SANITARY CHEMISTRY.

The examination of air for sanitary purposes; detection of noxious gases and atmospheric impurities.

Water for sanitary purposes; detection of metals in water; the action of water on metals.

Milk and food.

Practical examination in Chemistry as applied to Public Health.



## 2 — PHYSICS.

The principles of physics in their application to warming, ventilation, water supply, and drainage.

The elements of meteorology and the use of meteorological instruments.

## 3.—BACTERIOLOGY AND COMPARATIVE PATHOLOGY, ETC.

*Written and vivâ voce examinations.* The principles of Bacteriology and Immunity and their application to the prevention, diagnosis and treatment of disease. The causation and pathology of diseases due to bacteria, vegetable parasites, protozoa and animal parasites. The methods of bacteriology, with especial reference to the detection of the causal agent of disease and the examination of water, milk and other foods, etc.

*Practical Examination.*—Candidates will be expected to show a practical acquaintance with the usual methods of bacteriological investigation.

## PART II.

## 1.—SANITARY LEGISLATION.

A general knowledge of the Statutes, Local Government Board Orders, By-laws and Regulations relating to Public Health and Housing.

## 2.—VITAL STATISTICS.

Rates of birth, death, and marriage; methods of calculation, classification and tabulation of returns of sickness and mortality; data required and conclusions deducible therefrom.

## 3.—NOSOLOGY.

Definition, nomenclature, and classification of diseases.

## 4.—CLIMATOLOGY, METEOROLOGY, GEOGRAPHICAL DISTRIBUTION OF DISEASE.

## 5.—SANITARY MEDICINE.

The origin, propagation, pathology, and prevention of communicable diseases; and of diseases caused by or associated with food and drink, environment and occupation. Preventive measures against the propagation and spread of disease.



## 6.—PRACTICAL HYGIENE.

Sanitary appliances; the site, materials, construction, capacity, lighting, ventilation, warming, dryness, water supply, drainage, sewerage, and refuse disposal, of houses, schools, hospitals, factories, workshops and other buildings intended for occupation or use by man or cattle. The examination of butchers' meat and other food. Noxious and offensive trades, nuisances. The duties of a Medical Officer of Health and Inspector of Nuisances.

## 7.—The Candidate will also be required—

- (a) To pass a clinical examination on medical cases at the City Hospital for Infectious Diseases, or elsewhere.
- (b) To draw up outlines for annual or other reports of a Medical Officer of Health.
- (c) To report upon the condition of some actual locality.
- (d) To describe the construction and use of hygienic apparatus, and sanitary appliances.
- (e) To examine submitted specimens with the microscope.
- (f) To describe submitted specimens of diseased organs and tissues (human and other).
- (g) To inspect and describe specimens of meat or other articles of food.

*Fees.*—The fee for examination for the degree of Bachelor of Hygiene is £10 10s. 0d.

For re-examination: in both parts £4 4s. 0d., in one part only £2 2s. 0d.

A candidate wishing to present himself for examination must give at least *twenty-eight days' notice* to Professor Howden, Secretary of the University of Durham College of Medicine, Newcastle-upon-Tyne, and must, at the same time, send the examination fee and the necessary certificates.

Candidates who have entered for the examination may withdraw their names upon giving nine days' notice to the Secretary. In that case they may enter *either* at the next examination *or* at the next but one (but not afterwards) without further payment.

*The dates of the examinations for the degree of Bachelor of Hygiene in 1915 will be:—*March 12th, June 4th.

## THE DEGREE OF DOCTOR OF HYGIENE (D.HY.).

### REGULATIONS.

1.—The candidate shall be a Bachelor of Hygiene, and shall have been engaged for two years subsequently to the date of his acquiring that degree in public health administration, or in research work relating to public health.

2.—The degree of Doctor of Hygiene shall be conferred on a report of an investigation of the claims of the candidate by two Examiners specially appointed for this purpose, who shall report to the board of the Faculty of Medicine on the qualifications of the candidate, basing their report upon the candidate's distinction in special research or learning.

The candidate will be required to make his application in writing to the Secretary of the College of Medicine *on or before January 1st* in any year, and to state the special subject, upon a knowledge of which he bases his qualifications, forwarding at the same time a thesis and such other evidence of his contributions to the advancement of Hygiene as may support his application.

The Examiners shall examine the candidate *vivâ voce* on such contributions.

*Fees.*—The fee for the examination for the degree of Doctor of Hygiene is £5.

For re-examination, £2.

*The date of the examination for the degree of Doctor of Hygiene in 1915 will be :—*March 16th.

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# THE DIPLOMA IN PUBLIC HEALTH (D.P.H.).

## REGULATIONS.

### I.—Education.

1.—The candidate shall be a registered medical practitioner.

2.—The curriculum shall extend over a period of not less than nine calendar months.

3.—The candidate shall produce satisfactory evidence that, after obtaining a registrable qualification he has received practical instruction in a laboratory or laboratories approved by the University, in which chemistry, bacteriology, and the pathology of the diseases of animals transmissible to man are taught.

The laboratory instruction shall cover a period of not less than four calendar months, and the candidate shall produce evidence that he has worked in the laboratory for at least 240 hours, of which not more than one-half shall be devoted to practical Chemistry. The laboratory course should be so arranged as to lay special stress on work which bears most directly on the duties of a Medical Officer of Health.

4.—The candidate shall produce satisfactory evidence—  
*Either*

(1) That, after obtaining a registrable qualification he has during six months been diligently engaged in acquiring a practical knowledge of the duties, routine and special, of public health administration, under the personal supervision of—

(a) In England and Wales, the Medical Officer of Health of a county or of a single or combined sanitary district having a population of not less than 50,000, or a Medical Officer of Health devoting his whole time to public health work; or—

(b) In Scotland, a Medical Officer of Health of a county or counties, or of one or more districts having a population of not less than 30,000; or—

(c) In Ireland, a Medical Superintendent Officer of Health of a district or districts having a population of not less than 30,000; or—

(d) In the British Dominions outside the United Kingdom, a Medical Officer of Health of a sanitary district having a population of not less than 30,000, who himself holds a registrable diploma in Public Health; or—

- (e) A Medical Officer of Health who is also a teacher in the Department of Public Health of a recognized medical school; or—
- (f) A Sanitary Staff Officer of the Royal Army Medical Corps having charge of an Army Corps District, Command, or Division, recognized for this purpose by the General Medical Council; or—
- (g) An Assistant Medical Officer of Health of a county, or of a single sanitary district having a population of not less than 50,000, provided the Medical Officer of Health of the county or district in question permits the assistant officer to give the necessary instruction and issue certificates.

*Note.*—The certificate for the above purpose must include testimony that the candidate has attended under the supervision of the person certifying on not less than 60 working days.

Provided that if the candidate has

(i.) produced satisfactory evidence that he has attended a course or courses of instruction in sanitary law, vital statistics, epidemiology, school hygiene, and other subjects bearing on Public Health administration, given by a teacher or teachers in the department of public health of a recognized medical school; or—

(ii.) produced evidence that he has been a resident Medical Officer in a hospital for infectious diseases containing not less than 100 beds, during a period of three months,

the period during which he has been engaged in acquiring practical knowledge of his duties under this *Rule* may be reduced to three months, to include an attendance on at least 30 working days.

The following Districts and Commands have been recognized by the Council, viz.:—Aldershot; Salisbury Plain; Southern and South-Eastern; Western; Dublin and Belfast; Cork; Chatham and Woolwich; Home; Eastern; North-Eastern and North-Western; Scottish; Gibraltar Command; Malta Command. The following Indian divisions, viz.:—1st (Peshawar); 2nd (Rawalpindi); 3rd (Lahore); 4th (Quetta); 5th (Mhow); 6th (Poona); 7th (Meerut); 8th (Lucknow); 9th (Secunderabad); Burma.

*Or*

(2) That he has himself held for a period of not less than three years an appointment as Medical Officer of Health of a sanitary district within the British Dominions, and having a population of not less than 15,000.

5.—The candidate shall produce evidence that, after obtaining a registrable qualification, he has during three months attended at least twice weekly the practice of a hospital for infectious diseases, at which he has received instruction in the methods of administration.

*Note (1)* Methods of administration shall include the methods of dealing with patients at their admission and discharge, as well as in the wards, and the medical superintendence of the hospital generally.

*Note (2)* In the case of a Medical Officer of the Royal Army Medical Corps, a certificate from a Principal Medical Officer under whom he has served, stating that he has during a period of at least three months been diligently engaged in acquiring a practical knowledge of hospital administration in relation to infectious diseases, may be accepted as evidence under *Rule 5*.

## REGULATIONS APPLICABLE TO MEDICAL PRACTITIONERS, REGISTERED, OR ENTITLED TO BE REGISTERED, ON OR BEFORE JANUARY 1ST, 1890.

1.—The candidate shall be a medical practitioner, registered, or entitled to be registered, on or before January 1st, 1890.

2.—The candidate shall be required to pass the same examination as that for the ordinary diploma in Public Health.

### II.—Examination.

The examination is the same as that for the degree of Bachelor of Hygiene (see page 76 *et seq.*).

*Fees.*—The fee for the examination and diploma is £10 10s. 0d.

For re-examination : In both parts, £4 4s. 0d. ;  
in one part, £2 2s. 0d.

A candidate wishing to present himself for the examination must give at least *twenty-eight days'* notice to Professor Howden, Secretary of the University of Durham College of Medicine, Newcastle-upon-Tyne, and must, at the same time, send the examination fee and the necessary certificates.

Candidates who have entered for the examination may withdraw their names upon giving nine days' notice to the Secretary. In that case they may enter *either* at the next examination *or* at the next but one (but not afterwards) without further payment.

*The dates of the examination for the diploma in Public Health in 1915 will be :—*March 12th, June 4th.

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# THE DIPLOMA IN PSYCHIATRY.

## REGULATIONS.

### I.—Education.

1.—The candidate must be a legally qualified medical practitioner.

2.—He must have attended the following courses of instruction :—

#### (a) Anatomy.

Ten meetings of two hours each.

Development and anatomy (advanced) of the nervous system, with practical dissection of the brain and spinal medulla.

#### (b) Physiology, histology and chemistry of the nervous system.

Thirty meetings of two hours each.

The work will include :—

**HISTOLOGY.**—Methods of preparing and staining nervous tissues. The development and structure of nerve cells and fibres. Degenerative and regenerative changes in the neuron. The various forms of nerve endings. The arrangement of the cells and the course of the conducting tracts in the spinal medulla, medulla oblongata and pons. The structure of the cerebellum and cerebral cortex.

**CHEMISTRY.**—The chemical composition of white and grey matter, and of the cerebro-spinal fluid.

**EXPERIMENTAL STUDY.**—The excitability and conductivity of nerve, and the response of the nerve to various forms of stimulus. The functions of the spinal medulla, medulla and cerebellum. Muscular sense, cutaneous sensations, reflex action and fatigue. The functions of the cerebrum.

#### (c) Pathology.

Twenty meetings of two hours each.

Post-mortem technique; the removal of nervous tissues from the body for microscopical examination. Special methods of fixation and staining. Preparation of microscopical specimens by rapid freezing, celloidin and



paraffin methods. Examination of illustrative preparations of disease in the peripheral nerves, spinal medulla and brain, including vascular disturbances, inflammatory conditions, the infective granulomata, tumours, general paralysis of the insane and other types of insanity. Demonstrations of naked eye appearances of recent specimens of disease in the central nervous system. Cytological examination of the blood and cerebro-spinal fluid.

(d) Bacteriology.

The same course of instruction as for the degree of Bachelor of Hygiene.

(e) Psychology and Experimental Psychology.

Twenty-five to thirty hours instruction.

The work will include :—A general description of normal states of consciousness. The relation between physical and mental processes. Conscious and sub-conscious states of mind, and the development of mental processes. The normal personality. Introspection and psychological analysis. Will, emotion, attention, habit, instinct, perception, and ideation.

Methods of experimental psychology, their application and limitations.

(f) Clinical Neurology.

Ten demonstrations of the rarer forms of nervous diseases, the special methods of their examination and treatment, including operative.

(g) Psychiatry.

A course of ten hours, supplemental to the course of mental diseases now required for the degree of M.B.

(h) Clinical Psychiatry.

A course of six months duration in an asylum in which instruction is given on at least three days in each week; or a course of three months duration along with a resident appointment for three months. The holding of a resident appointment for six months in an asylum, with attendance on clinical instruction, will be regarded as equivalent to either of the above requirements.

3.—Candidates who have qualified as medical practitioners before January 1st, 1911, are eligible for examination without attendance on the courses of instruction above mentioned.

## II.—Examination.

The examination is divided into two parts. Candidates may present themselves for either part separately ; or for both together, at their option.

### PART I.

Anatomy, Physiology, Pathology, and Bacteriology.

### PART II.

Psychology and Experimental Psychology, Neurology and Psychiatry (Systematic and Clinical).

*Fees.*—The fee for the examination and the diploma in Psychiatry is £10 10s. 0d.

For re-examination in either part, £2 2s. 0d.

A candidate wishing to present himself for examination must give at least *twenty-eight days'* notice to Professor Howden, Secretary of the University of Durham College of Medicine, Newcastle-upon-Tyne, and must, at the same time, send the examination fee and the necessary certificates.

Candidates who have entered for the examination may withdraw their names upon giving *nine days'* notice to the Secretary. In that case they may enter *either* at the next examination *or* at the next but one (but not afterwards) without further payment.

*The date of the examination for the diploma in Psychiatry in 1915 will be :—June 21st.*

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## THE LICENCE IN DENTAL SURGERY (L.D.S.).

### REGULATIONS.

#### I.—Education.

1.—A candidate for the licence in dental surgery must be registered as a dental student by the General Medical Council for registration.

2.—Before presenting himself for examination he shall be required to furnish certificates of instruction in the following subjects, attended after registration as a dental student :—

##### *First Examination.*

Chemistry. Lectures and practical work. 3 terms.

Physics. Lectures and practical work. 3 terms.

##### *Second Examination.*

Dental mechanics. Not less than 20 lectures.

Dental metallurgy. Not less than 12 lectures,  
and not less than 30 hours of practical work.

##### *Third Examination.*

Anatomy. 2 terms.

Dissections. 4 terms.

Physiology. 2 terms.

Histology. 1 term.

Dental anatomy and physiology. Not less than  
20 lectures.

Dental histology. Not less than 12 lectures.

Dental materia medica. Not less than 12 lectures.

##### *Final Examination.*

Dental hospital practice. Two years.

General hospital practice. Nine months.

Medicine lectures. 2 terms.

Surgery lectures. 2 terms.

Dental surgery and pathology. Not less than 20 lectures.

Dental bacteriology. Not less than 12 lectures.

Operative dental surgery. Not less than 12 lectures.

Anæsthetics. Not less than one month.

3.—Before admission to the final examination, the candidate must furnish evidence (1) of having undergone three years pupillage in mechanical dentistry with a registered dentist, and (2) of having been engaged in professional study for at least four years subsequently to registration as a dental student.

## II.—Examination.

1.—There are four examinations, of which the subjects are as follows :—

### *First Examination :*

(a) Chemistry.

(b) Physics.

### *Second Examination :*

(a) Dental mechanics (theoretical and practical).

(b) Dental metallurgy.

### *Third Examination :*

(a) Anatomy.

(b) Physiology and histology.

(c) Dental anatomy and dental histology.

(d) Dental materia medica.

This examination may be passed in two portions, viz. :—

(1) Anatomy, physiology, and histology.

(2) Dental anatomy, dental histology, and dental materia medica.

### *Final Examination :*

(a) Surgery.

(b) Dental surgery, including prosthetics and orthodontia.

(c) Operative dental surgery (practical examination).

(d) Dental pathology and bacteriology.

Before admission to the final examination the candidate must sign the following declaration :—

I, the undersigned, do solemnly and sincerely declare that I will exercise the several parts of my profession to the best of my knowledge and ability for the good, safety, and welfare of all persons committing themselves or committed to my care ; and I hereby promise as a licentiate in dental surgery that I will abstain from advertising for professional purposes, or employing any other unprofessional modes of attracting patients ; and that I will not allow my name to be connected with anyone who does so ; and I further promise to conform to the discipline of the University and to all statutes, regulations, and rules in force for the time being, relating to licentiates in dental surgery.

*Fees.*—The fees for the several examinations are as follow :—

|                    | £ | s. | d. |                  | £ | s. | d. |
|--------------------|---|----|----|------------------|---|----|----|
| First examination  | 2 | 10 | 0  | Re-examination   | 1 | 10 | 0  |
| Second examination | 2 | 10 | 0  | „                | 2 | 0  | 0  |
| Third examination  | 3 | 10 | 0  | „                | 2 | 0  | 0  |
|                    |   |    |    | In one part only | 1 | 0  | 0  |
| Final examination  | 3 | 10 | 0  | Re-examination   | 2 | 0  | 0  |

A candidate who intends to present himself for examination must give at least *twenty-eight days' notice* to Professor Howden, Secretary of the University of Durham College of Medicine, Newcastle-upon-Tyne, and must, at the same time, send the examination fee and the necessary certificates.

A candidate who has entered for any of the above examinations may withdraw his name upon giving nine days' notice to the Secretary of the College of Medicine. In that case he may enter *either* at the next examination *or* at the next but one (but not afterwards) without further payment.

*The dates of the several examinations in 1915 will be :—*

|                     |                          |
|---------------------|--------------------------|
| First examination—  | } March 15th, June 21st. |
| Second examination— |                          |
| Third examination—  |                          |
| Final examination—  | March 18th, June 10th.   |

# LECTURES, LABORATORY WORK AND CLINICAL INSTRUCTION IN THE FACULTY OF MEDICINE.

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## CHEMISTRY.

Professor P. PHILLIPS BEDSON, M.A., D.Sc.

F. C. GARRETT, D.Sc.

J. A. SMYTHE, D.Sc., Ph.D.

A. FOSTER, M.Sc., Ph.D.

J. B. FIRTH, M.Sc.

AT ARMSTRONG COLLEGE.

### 1.—THE GENERAL PRINCIPLES OF CHEMISTRY.

#### A. LECTURES.

MICHAELMAS AND EPIPHANY TERMS.

*Monday, Wednesday and Friday at 11 a.m.*

A description of the properties of the commoner elements (non-metallic and metallic), and their more important compounds.

Students are required to satisfy the Professor that they are keeping regular notes of the lectures, and will be expected to pass satisfactorily at least one of the terminal examinations.

TEXT BOOKS.—Remsen's Inorganic Chemistry. Lupton's Chemical Arithmetic, or Mellor's Modern Inorganic Chemistry.

#### B. LABORATORY WORK.

MICHAELMAS AND EPIPHANY TERMS.

*Thursday, 11 a.m. to 1 p.m.*



2.—ORGANIC CHEMISTRY.  
LECTURES AND LABORATORY WORK.  
EASTER TERM.

*Monday, 10-5, and Wednesday, 10-1.*

This course is intended to make the student familiar with the elements of qualitative and of volumetric analysis ; the detection of the commoner bases and acids in simple salts ; the reactions of glucose, cane sugar, fats, urea, uric acid, and of the commoner alkaloids.

A portion of the time set apart for this course is devoted to a series of lectures on the elements of Organic Chemistry.

TEXT BOOK.—Cohen's Organic Chemistry.

3.—PUBLIC HEALTH CHEMISTRY.  
EPIPHANY TERM.

*Monday, Tuesday and Wednesday, 2-5 p.m.*

This course is designed to meet the requirements of students reading for the B.Hy. degree and for the diploma in Public Health.

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The chemical laboratories are appointed so as to meet the requirements of all classes of students, and to provide facilities for research. Each student has a fully-fitted bench to himself, provided with all the necessary apparatus and reagents. The laboratories are open daily from 10 a.m. till 5 p.m. during term time.

PHYSICS.

Professor H. STROUD, M.A., D.Sc.  
H. MORRIS-AIREY, M.Sc.  
J. W. BULLERWELL, M.Sc.

AT ARMSTRONG COLLEGE.

1.—THE PRINCIPLES OF PHYSICS.

MICHAELMAS, EPIPHANY AND EASTER TERMS.

*Tuesday at 10 a.m.*

The lectures will be devoted to the demonstration of the principal laws and phenomena comprehended in the

synopsis of subjects of the first examination for the degree of Bachelor in Medicine. (See pages 57 and 58.)

Written answers to questions set in the lectures will be expected to be worked out and brought by students, and will be returned corrected.

TEXT BOOKS.—D. E. Jones' Heat and Light. S. P. Thompson's Electricity and Magnetism.

## 2.—PRACTICAL PHYSICS.

### EASTER TERM.

*Wednesday, 2-5. Thursday, 10-1. Friday, 10-1.*

This course is designed to afford students attending the lectures above-mentioned the opportunity of becoming familiar with the use of the simpler physical instruments. It will include experiments in experimental mechanics, heat, electricity, and optics.

Each student should provide himself with a stop watch and pocket lens.

TEXT BOOK.—Stroud's Elementary Practical Physics.

## 3.—PUBLIC HEALTH PHYSICS.

### EPIPHANY TERM.

*Friday, 10-1.*

This course is designed for the instruction of students preparing for the degree of Bachelor of Hygiene or the diploma in Public Health.

TEXT BOOKS.—Shaw's Air Currents and the Laws of Ventilation. Hydrostatics and Pneumatics, Magnus. Scott's Meteorology. Laws of Health, Corfield, and selections from other works.

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Special laboratory courses are arranged for students desiring to study some one branch of physics, and opportunity is afforded for undertaking research. The laboratory is open daily during term time.

## BIOLOGY.

Professor M. C. POTTER, M.A., Sc.D.

Professor A. MEEK, M.Sc.

S. MANGHAM, M.A.

T. SMALL, B.Sc.

A. D. PEACOCK, M.Sc.

T. BENTHAM, B.Sc.

AT ARMSTRONG COLLEGE.

## MICHAELMAS AND EPIPHANY TERMS.

*Botany—Thursday. Lecture, 10-11, and Practical Work, 2-5.*

*Zoology—Tuesday. Lecture, 12-1, and Practical Work, 2-5.*

The fundamental facts and laws of the morphology, histology, physiology, and life-histories of plants as illustrated by, *Bacterium*, *Saccharomyces*, *Hæmatococcus*, *Spirogyra*, *Mucor*, *Penicillium*, *Pythium*, *Claviceps*, *Fucus*, *Flowering Plant*.

The elements of vegetable physiology treated experimentally.

The fundamental facts and laws of animal morphology and physiology as illustrated by *Amæba*, *Vorticella*, *Hydra*, *Tenia*, *Lumbricus*, *Nephrops*, *Amphioxus*, *Raia*, *Rana*, *Lepus*.

The general developmental history of *Amphioxus*, *Rana* and *Gallus*.

Practical instruction in the general structure of each of the animal and vegetable types above specified will be given.

The student is required to provide himself with microscope, dissecting instruments, and razor.

This course is accepted by the Royal College of Surgeons as covering the instruction in Comparative Anatomy required for the diploma of F.R.C.S.

TEXT BOOKS.—Parker's Practical Zoology. Potter's Botany. Meek's Animal Types.

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The laboratories of botany and zoology are open daily during term time, and every opportunity is afforded for the prosecution of research.

## ANATOMY.

Professor R. HOWDEN, M.A., M.B., C.M.,  
D.Sc., F.R.S.E.

JOHN CLAY, M.B., B.S., F.R.C.S.

J. DUNLOP LICKLEY, M.D.

W. JOHNSTON, M.B., Ch.B.

## 1.—SYSTEMATIC LECTURES.

## (a) JUNIOR DIVISION.

## MICHAELMAS TERM.

*Monday and Friday at 12 noon.*

## EPIPHANY TERM.

*Monday, Wednesday and Friday at 12 noon.*

The subject of these lectures will be the bones, joints and muscles of the body generally, together with an outline of the vascular, nervous and alimentary systems.

In connexion with the lectures a course of tutorial instruction will be given in Osteology.

Each student is recommended to provide himself with a "half-set" of bones and a disarticulated skull.

## (β) SENIOR DIVISION.

## MICHAELMAS TERM.

*Tuesday, Wednesday and Thursday at 12 noon.*

## EPIPHANY TERM.

*Tuesday and Thursday at 12 noon.*

The lectures will be explanatory of the anatomy of the thorax, abdomen, head and neck (including the brain and sense organs and limbs). The more important facts regarding the development of the various systems will also be dealt with.

TEXT BOOKS.—Any one of the following : Gray's Anatomy. Cunningham's Text Book of Anatomy. Morris' Treatise on Anatomy. Quain's Anatomy. Macalister's Text Book of Anatomy. Piersol's Human Anatomy.

## 2.—ANATOMICAL DEMONSTRATIONS.

## MICHAELMAS AND EPIPHANY TERMS.

*Wednesday, Thursday and Friday at 4 p.m.*

## EASTER TERM.

*Monday, Wednesday and Friday at 12 noon.*

These demonstrations are specially adapted for senior students and will be illustrated by carefully prepared recent dissections.

## 3.—PRACTICAL ANATOMY.

The dissecting room is open daily during term time from 9 a.m. until 5 p.m. (Saturday until 12 noon).

The Professor of Anatomy and his Assistants will attend in the room daily.

The detailed regulations for the dissecting room may be had on application to the Professor.

INSTRUMENTS.—Each student must furnish himself with a dissecting case containing : four to six scalpels, a pair of forceps, a set of chain hooks, a pair of scissors, and a blow pipe and needle.

TEXT BOOKS.—Any one of the following : Cunningham's Manual of Practical Anatomy. Ellis' Demonstrations of Anatomy. Heath's Practical Anatomy.

## 4.—MEDICAL AND SURGICAL APPLIED ANATOMY.

Lecturer, JOHN CLAY, M.B., F.R.C.S.

## MICHAELMAS TERM.

*Monday and Tuesday at 2.15 p.m.*

This course is for students who intend to proceed to the B.S. examination and should be attended during the fourth winter.

The lectures will, as far as possible, be illustrated by recent dissections, and will include demonstrations on the living subject of anatomical facts as applied to medicine and surgery.

TEXT BOOKS.—Treves' Surgical Anatomy or Taylor's Applied Anatomy.

Assistant demonstrators and prosectors are appointed in the department of anatomy from among the senior students.

## PHYSIOLOGY.

Professor F. A. BAINBRIDGE, M.A., M.D., D.Sc.,  
F.R.C.P., D.P.H.

J. A. MENZIES, M.D.

### 1.—SYSTEMATIC LECTURES.

MICHAELMAS AND EPIPHANY TERMS.

*Monday and Wednesday, at 10 a.m. and Friday, at 11 a.m.*

TEXT BOOK.—Halliburton's Handbook of Physiology.

### 2.—PRACTICAL PHYSIOLOGY.

(CHEMICAL AND EXPERIMENTAL).

MICHAELMAS AND EPIPHANY TERMS.

*Tuesday and Thursday at 10 a.m., and Friday at 9.30 a.m.*

The course includes :—

#### (1) CHEMICAL SECTION.

Chemistry of carbohydrates, fats, proteins, and their derivatives.

Chemistry of foods.—Milk, bread, meat, etc.

Chemistry of digestion.—Saliva, bile, peptic and pancreatic digestion.

Chemistry of urine.—Normal and pathological. Quantitative estimation of urea, sugar, phosphates, chlorides, acidity and ammonia.

Chemistry of blood, with the estimation of hæmoglobin and the enumeration of corpuscles.

Estimation of oxygen capacity of the blood.



## (2) EXPERIMENTAL SECTION.

The contraction of skeletal and cardiac muscle under various conditions. Ciliary movement.

The heart beat, pulse, blood-pressure.

Changes in air and in blood in respiration.

Conduction in nerve, reflex action, reaction time.

The special senses, methods of investigation ; ophthalmoscope, perimeter, phakoscope, etc.

Demonstrations will likewise be given on blood pressure, innervation of heart, respiration, secretion, etc.

TEXT BOOK.—Exercises in Practical Physiological Chemistry (Cole).

## 3.—PRACTICAL HISTOLOGY.

MICHAELMAS AND EPIPHANY TERMS.

*Friday at 9.30 a.m.*

EASTER TERM.

*Monday, Wednesday, and Friday at 9.30 a.m.*

The examination of fresh tissues. The preparation of sections of tissues and organs. Stained sections, prepared chiefly by the paraffin method, are also distributed.

APPARATUS.—Each student must provide himself, before commencing the course, with the following apparatus and re-agents:—A good microscope, with low and high powers; box for slides, to hold one gross; one gross micro. slides, 3 inches by 1 inch; thin cover slips,  $\frac{3}{4}$ -inch circles,  $\frac{1}{4}$  ounce;  $\frac{3}{4}$ -inch squares.  $\frac{3}{4}$  ounce; labels for slides; two strong-handled needles; pair of fine forceps; small camel hair brush; section lifter; two small watch glasses; an "Army" razor (1s.); a wide tube containing xylol; a bottle containing canada balsam in xylol; small bottle of Farrant's medium; small bottle of glycerine; a drawing book; coloured pencils or water colours; dissecting case; small wide-mouthed bottle with cork; duster.

TEXT BOOK.—Essentials of Histology (Schäfer).

Students desiring to undertake original investigations, or to practise physiological methods, may be admitted to work in the laboratories on the fulfilment of certain conditions. Application in all cases must be made to the Professor.

Assistant demonstrators are chosen yearly from amongst the senior students.

## PATHOLOGY.

Professor STUART McDONALD, M.A., M.D.,  
F.R.C.P., Ed.

W. T. SEWELL, M.D., D.P.H.

W. E. HUME, M.A., M.D., M.R.C.P.

*Demonstrator of Medical Morbid Anatomy.*

R. J. WILLAN, M.S., F.R.C.S.

*Demonstrator of Surgical Morbid Anatomy.*

### 1.—SYSTEMATIC LECTURES.

MICHAELMAS, EPIPHANY AND EASTER TERMS.

*Monday at 3 and Tuesday at 2.30.*

*General Pathology.*—The causation of disease. Cellular pathology. The pathology of nutrition, including the degenerations and infiltrations. Atrophy and necrosis. The vital reaction of the cells and tissues to irritants. Inflammation, suppuration and repair. The pathology of infection. The infective granulomata. Hypertrophy and neoplasia. Mechanical disturbances of the circulation. Hyperæmia, acute and chronic. Thrombosis. Œdema. Ischæmia. Embolism and infarction.

*Special Pathology.*—A systematic description of the pathology of the individual tissues and organs.

The lecture course will be illustrated by microscopical and lantern demonstrations.

## 2.—PRACTICAL PATHOLOGY.

MICHAELMAS AND EPIPHANY TERMS.

*Monday, 4-5, and Friday, 3-5.*

EASTER TERM.

*Friday, 2-4.*

The practical course will be complementary to and illustrative of the systematic lectures. Practical instruction will be given in the ordinary methods of pathological investigation, in pathological histology, and in morbid anatomy. Students will be provided with a set of microscopical preparations illustrating pathological histology.

## 3.—DEMONSTRATIONS IN THE POST-MORTEM ROOM.

*Daily at 11, and Thursday at 12-30.*

Instruction in *post-mortem* methods and demonstrations on morbid anatomy will be given in the pathological department of the Royal Victoria Infirmary as opportunity occurs. Special demonstrations on collected specimens are held on Thursdays.

## 4.—DEMONSTRATIONS IN THE MUSEUM.

MICHAELMAS AND EPIPHANY TERMS.

Surgical, *Monday at 3 p.m.*Medical, *Tuesday at 2 p.m.*

These demonstrations are intended for the instruction of students in their fourth and fifth years of medical study.

Arrangements for advanced or research work in morbid histology and chemical pathology can be made on application to the Professor.

Clerks in the pathological department of the Royal Victoria Infirmary are appointed in March, June, September and December.

Assistant demonstrators of pathology are appointed from among the senior students at the beginning of Michaelmas term each year.

### **PATHOLOGICAL DIAGNOSIS.**

Examinations of morbid tissues, urine, blood, gastric contents, etc., for purposes of clinical diagnosis, are made in the pathological laboratory for medical practitioners at fees which vary with the nature of the investigation. Reduced fees are charged in the case of hospitals and other public bodies.

### **COMPARATIVE PATHOLOGY AND BACTERIOLOGY.**

#### **HEATH FOUNDATION.**

Heath Professor, H. J. HUTCHENS, D.S.O., D.P.H., M.A.  
P. C. W. LAWS, M.A.

(Vacant).

GEORGE HALL, M.D., B.Sc., M.R.C.P.

#### **1.—SYSTEMATIC LECTURES.**

MICHAELMAS, EPIPHANY AND EASTER TERMS.

*Monday at 2 p.m.*

An elementary course of lectures on bacteriology and parasitology for the degrees in medicine.

#### **2.—PRACTICAL BACTERIOLOGY, ETC.**

MICHAELMAS, EPIPHANY AND EASTER TERMS.

*Thursday, 2-4.*

The instruction in the laboratory will be supplementary to the lectures mentioned above.

The student is required to provide himself with a good microscope which should be fitted with a  $\frac{1}{12}$  inch oil immersion lens and an Abbe condenser.

## 3.—ADVANCED BACTERIOLOGY, ETC.

## MICHAELMAS TERM.

*Monday, Tuesday, Wednesday and Friday, 2-5.*

This course is designed to meet the requirements of the General Medical Council for students reading for the degrees in hygiene and for the diploma in public health.

## 4.—POST-GRADUATE INSTRUCTION.

## EASTER TERM.

*Tuesday at 4 p.m.*

These lectures and demonstrations are devoted to the discussion of matters of especial interest to men engaged in general practice.

## 5.—COMPARATIVE PATHOLOGY.

## EASTER TERM.

*Wednesday at 3 p.m.*

These lectures will deal with the special pathology and bacteriology of the diseases of animals communicable to man.

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The Heath laboratory is open daily from 10 a.m. to 5 p.m. during term, for the convenience of those wishing to carry on research work. A small fee is charged for the use of the laboratory and apparatus, viz.:—for one day a week, 1 guinea per term of three months, two days a week, 2 guineas, and so on. *These facilities do not apply to undergraduates and others working for the ordinary degree and diploma examinations.*

## CLINICAL AND PUBLIC HEALTH DEPARTMENT.

Material sent for investigation will be examined by a member of the teaching staff, who will submit a report upon it as soon as possible after its receipt. The preparation of vaccines, serum diagnosis, Wasserman's reaction, etc., are also undertaken.

The fees charged will vary with the amount of work required to complete the investigation, but will in every case be as small as is consistent with reliable work.

## MATERIA MEDICA AND PHARMACOLOGY.

Professor W. E. HUME, M.A., M.D., M.R.C.P.,  
Physician to the Royal Victoria Infirmary.

### 1.—LECTURES.

#### EASTER TERM.

*Monday, Wednesday, and Friday at 4 p.m.*

Definitions. Weights and measures. Dosage. Prescribing. Drugs, their sources, physical characters, adulterations, and incompatibles ; their pharmaceutical preparations, pharmacological actions, uses, and methods of administration.

TEXT BOOKS.—Hale White's *Materia Medica*. Dixon's *Pharmacology*.

### 2.—PRACTICAL PHARMACY.

Practical pharmacy is taught in the dispensary of the Royal Victoria Infirmary.

## PUBLIC HEALTH.

Professor T. EUSTACE HILL, M.A., M.B., C.M., B.Sc.  
(Public Health), F.I.C., Medical Officer of Health  
for the County of Durham.

### 1.—LECTURES.

#### MICHAELMAS AND EPIPHANY TERMS.

*Tuesday and Thursday at 4 p.m.*

THE FOLLOWING SUBJECTS ARE CONSIDERED—

Air and ventilation—The effects on health of overcrowding, vitiated air and occupation. Methods of natural and artificial ventilation and warming in relation to buildings.

Water supply and the effects on health of impure water. Purification for domestic purposes.

The dwelling—site, construction, disposal of refuse and excretal matters, unhealthy dwellings.



The etiology and prevention of infective diseases. The methodical investigation of cases of such diseases with reference to their causation.

The general principles and methods of preventive inoculation, isolation and disinfection.

Foods and dietaries—unsound food.

Dairies and cowsheds, slaughterhouses, offensive trades.

Personal hygiene.

Sanitary law with special reference to the powers and obligations of the medical practitioner. Death certification.

Sanitary administration.

Elementary vital statistics.

TEXT BOOKS—Whitelegge's Hygiene and Public Health. Parkes and Kenwood's Hygiene and Public Health. Wilson's Handbook of Hygiene. Reid's Practical Sanitation.

And in addition for the degree in hygiene and for the diploma in public health, the following books are recommended:—Hime's Practical Guide to the Public Health Acts. Robertson and Porter's Sanitary Law and Practice. Notter and Firths' Theory and Practice of Hygiene. Preventive Medicine and Hygiene, by Rosenau. Dwelling Houses, by Professor Corfield. Meat Inspection, by Professor Walley.

## 2.—CLINICAL INSTRUCTION IN INFECTIOUS DISEASES.

A course of lectures and clinical instruction at the City Hospital for Infectious Diseases, Newcastle-upon-Tyne, will be given during Michaelmas term by Dr. H. KERR. This course cannot be attended by students who are in residence at the Maternity Hospital.

## 3.—OUT-DOOR SANITARY PRACTICE FOR THE B.HY. DEGREE AND D.P.H.

A course of six months outdoor sanitary work, together with methods of hospital administration and clinical instruction in infectious diseases, may be arranged by applying to Dr. H. KERR, Medical Officer of Health, Town Hall, Newcastle-upon-Tyne.

## MEDICAL JURISPRUDENCE.

Professor ROBERT A. BOLAM, M.D., M.R.C.P., Physician to the Skin Department of the Royal Victoria Infirmary.

### EASTER TERM.

*Monday, Wednesday, and Friday at 5 p.m.*

Obligations of medical men as witnesses. Forms of evidence. Courts. Dying declarations. Wills. Certificates of death. Malapraxis. Identity. Signs of death. Modes of death. Wounds. Assaults. Murder. Manslaughter. Homicide. Pregnancy. Delivery. Birth. Sex. Foeticide. Infanticide. Concealment of birth. Rape. Impotency. Sterility. Legitimacy. Inheritance. Survivorship. Life assurance. Accident assurance. Compensation for injuries. Medico-legal post-mortem examinations. Examination of stains and fabrics. General principles of Toxicology. The mode of action, symptoms and treatment of the more important poisons.

TEXT BOOKS.—Guy and Ferrier's Principles of Forensic Medicine. Smith's Lectures on Medical Jurisprudence. Glaister's Medical Jurisprudence and Toxicology.

## MEDICINE.

Professor SIR GEORGE HARE PHILIPSON, M.A., M.D., D.C.L., LL.D., F.R.C.P., a Pro-Vice-Chancellor of the University, a President of, and a Consulting Physician to the Royal Victoria Infirmary, Newcastle.

Professor DAVID DRUMMOND, M.A., M.D., D.C.L., a Consulting Physician to the Royal Victoria Infirmary, Newcastle.

Professor SIR THOMAS OLIVER, M.A., M.D., LL.D., D.Sc., F.R.C.P., F.R.S.E., a Consulting Physician to the Royal Victoria Infirmary, Newcastle.

### 1.—THE PRINCIPLES AND PRACTICE OF MEDICINE.

MICHAELMAS AND EPIPHANY TERMS.

*Monday, Wednesday, and Friday at 4.15 p.m.*

This course will comprise the consideration of diseases, arranged under the two divisions of General (including Tropical diseases) and Local.

A succinct account will be given of the principal facts and doctrines of general pathology in their relation to etiology, the intimate constitution, the anatomical characters, the evolution and the pathogeny of the disease under consideration; whilst in addition, diagnosis, prognosis, therapeutics, prophylaxis, vital statistics, and nosology will be reviewed.

The course will be illustrated by drawings and wax models, and with preparations and recent specimens of morbid structures.

TEXT BOOKS.—Gibson's Text-Book of Medicine. Robert's Theory and Practice of Medicine. Osler's Principles and Practice of Medicine. Manson's Tropical Diseases.

## 2.—CLINICAL LECTURES.

MICHAELMAS, EPIPHANY AND EASTER TERMS.

*Wednesday at 11.30 a.m.*

Clinical lectures on medicine are delivered at the Royal Victoria Infirmary by the Medical Staff of the Institution.

## 3.—CLINICAL INSTRUCTION.

Clinical instruction in medicine is given in the wards and in the out-patient department of the Royal Victoria Infirmary.

The student is required to clerk in the wards for one of the Physicians for a period of six months, and in the out-patient department for a period of three months. During the latter period he will clerk for one of the out-patient Physicians one morning a week, and for one of the out-patient Surgeons one morning a week.

## 4.—TUTORIAL INSTRUCTION IN CLINICAL MEDICINE.

Junior tutorial classes are held four times a week during the first month of each of the Michaelmas and Easter terms by the Assistant Physicians. These classes consist of demonstrations, with instruction in physical signs and elementary clinical medicine.

Senior or advanced tutorial classes are held once a week throughout the academic year by the Assistant Physicians.

## PSYCHOLOGICAL MEDICINE.

Professor T. W. McDOWALL, M.A., M.D., Medical Superintendent of the Northumberland County Asylum, Morpeth.

### 1.—SYSTEMATIC LECTURES.

EASTER TERM.

*Thursday at 2 p.m.*

The classification, causes, symptoms, treatment, and some of the medico-legal relations of mental diseases will be considered.

TEXT BOOKS.—Any one of the following: Savage's Manual on Insanity. Clouston's Clinical Lectures on Mental Diseases. Maurice Craig's Psychological Medicine. Stoddart's Mind and its Disorders. Cole's Mental Diseases.

### 2.—CLINICAL INSTRUCTION.

EASTER TERM.

*Friday at 2.45 p.m.*

Clinical instruction is given by Dr. McDowall in the wards of the County Asylum at Morpeth. Students will have opportunities of examining cases and of thus becoming familiar with the various forms of insanity.

Three months Resident Clinical Clerkship in any County or Borough Asylum may be substituted for three months' attendance on Hospital Practice in the curriculum for the degrees in Medicine of the University of Durham.

## SURGERY.

Professor J. RUTHERFORD MORISON, M.A., M.D., F.R.C.S.,  
Consulting Surgeon to the Royal Victoria Infirmary.

Professor H. BRUNTON ANGUS, M.S., F.R.C.S., Surgeon  
to the Royal Victoria Infirmary.

G. GREY TURNER, M.S., F.R.C.S., Assistant Surgeon to  
the Royal Victoria Infirmary.

## 1.—THE PRINCIPLES AND PRACTICE OF SURGERY.

## MICHAELMAS AND EPIPHANY TERMS.

*Monday, Wednesday, and Friday at 5.15 p.m.*

TEXT BOOKS.—Erichsen's Science and Art of Surgery. Thomson and Miles' Surgery. Rose and Carless's Surgery. Spencer and Gask's Practice of Surgery. Russell Howard's Practice of Surgery.

## 2.—OPERATIVE SURGERY.

## EASTER TERM.

*Monday, Tuesday, Wednesday, and Thursday at 8.30 a.m.  
and 3.30 p.m.*

Each student will be required to perform at least ten operations upon the dead body, and must be prepared to answer questions upon the operations he has performed.

TEXT BOOKS.—Treves' small book on Operative Surgery. Stiles' translation of Kocher's Text Book of Operative Surgery.

## 3.—CLINICAL LECTURES.

## MICHAELMAS, EPIPHANY AND EASTER TERMS.

*Thursday at 11.30 a.m.*

Clinical lectures on surgery are delivered by the Surgical Staff at the Royal Victoria Infirmary.

## 4.—CLINICAL INSTRUCTION.

Clinical instruction in surgery is given in the wards and out-patient department of the Royal Victoria Infirmary.

The student is required to dress in the out-patient department for a period of three months, and in the wards for a period of six months.

## 5.—TUTORIAL INSTRUCTION IN CLINICAL SURGERY.

Junior tutorial classes are held four times a week during the first month of each of the Michaelmas and Easter terms by the Surgical Registrars. At these classes instruction is given in bandaging, dressing, and the elements of clinical surgery.

Senior tutorial classes are held once a week throughout the academic year by the Assistant Surgeons.

## MIDWIFERY AND GYNÆCOLOGY.

Professor R. P. RANKEN LYLE, M.A., M.D., Gynæcologist to the Royal Victoria Infirmary, Newcastle-upon-Tyne ; Obstetric Physician to the Newcastle Maternity Hospital.

### 1.—LECTURES ON MIDWIFERY.

#### MICHAELMAS TERM.

*Tuesday, Wednesday, and Thursday at 3.0 p.m.*

PART I.—Obstetrical applied anatomy. Physiology, diagnosis, management and pathology of pregnancy. Physiology and conduct of normal labour. Mechanism of labour.

PART II.—Dystocia, due to deformities of the pelvis, prolapse of umbilical cord, accidental hæmorrhage, placenta prævia, eclampsia, etc.

PART III.—The management of the puerperium. The pathology of the puerperium, including injuries to the genital organs, puerperal sepsis, post-partum hæmorrhage, mastitis, etc. The pathology, hygiene and management of the new-born infant.

PART IV.—Obstetric surgery, including version, induction of premature labour, forceps, craniotomy, Cæsarian section, etc.

TEXT BOOKS.—Text book of Obstetrics by Norris & Dickinson. Jellet's Short Practice of Midwifery.

### 2.—LECTURES ON GYNÆCOLOGY.

#### EPIPHANY TERM.

*Tuesday, Wednesday, and Thursday at 3.0 p.m.*

Methods of investigation and gynæcological case taking.

Amenorrhœa, menorrhagia, dysmenorrhœa.

Rupture of the perineum. Perineorrhaphy.

Diseases of the vulva, vagina and uterus, with their treatment.

Displacements of the uterus ; treatment.

New growths of the uterus ; treatment.

Diseases of the ovaries and uterine tubes ; treatment.



Diseases of the pelvic peritoneum and cellular tissue ; treatment.

Cœliotomy ; preparation, technique, and complications.

TEXT BOOKS.—Dührssen's Manual of Gynæcological Practice (2nd Edition). Diseases of Women by Bland-Sutton and Giles. Blair Bell's Principles of Gynæcology.

### 3.—PRACTICAL MIDWIFERY.

The Maternity Hospital, New Bridge Street, Newcastle-upon-Tyne, which contains 18 beds, and the Out-door Maternity connected with it—in which about 1,000 cases are attended annually—are both available for the practical study of midwifery by senior students of the College who have attended a course of lectures on that subject. The cases are attended under the supervision of the Medical Officers of the hospital—Mr. R. A. Nesham and Professor Ranken Lyle—to whom application should be made.

### 4.—CLINICAL GYNÆCOLOGY.

Clinical instruction is given in the gynæcological and out-patient departments of the Royal Victoria Infirmary, by Professor Ranken Lyle, on Tuesdays and Thursdays, at 9 a.m.

Assistants in the gynæcological department of the Royal Victoria Infirmary are appointed from among the senior students in March, June, September, and December.

## OPHTHALMOLOGY.

Professor J. D. WARDALE, M.A., M.B., B.S., Ophthalmic Surgeon to the Royal Victoria Infirmary, Newcastle.

### 1.—LECTURES.

#### EASTER TERM.

*Tuesday and Thursday at 4.30 p.m.*

Conjunctiva and Sclera. The Cornea. The uveal Tract. Glaucoma. The crystalline Lens. The Optic Nerve and

Retina. The Eyelids. The lachrymal Apparatus. The Ocular Muscles. The Orbit. Refraction. Functional Disturbances of Vision.

TEXT BOOKS.—Swanzy's Handbook on Diseases of the Eye, or Diseases of the Eye by May & Worth.

## 2.—CLINICAL INSTRUCTION.

Demonstrations on diseases of the eye are given by Mr. Wardale and Mr. Gowans, at the Royal Victoria Infirmary, on Monday, Thursday and Saturday at 9 a.m.

Clinical Instruction is also given at the Eye Infirmary, St. Mary's Place, every morning at 11 a.m.

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ASSISTANTS IN THE EYE DEPARTMENT.— Assistants in the ophthalmological department of the Royal Victoria Infirmary are appointed from among the senior students in March, June, September, and December.

## DISEASES OF CHILDREN.

O. W. OGDEN, M.D., Senior Physician to the Hospital for Sick Children, Newcastle-upon-Tyne.

### 1.—LECTURES.

#### EPIPHANY TERM.

*Friday at 3 p.m.*

The healthy infant: general management and hygiene. Infant feeding.

Diseases of childhood: Rickets. Infantile scurvy. Digestive disorders. Infantile syphilis. Rheumatism. Tuberculosis. Diseases of the respiratory, circulatory, nervous, and urinary systems. Diseases of the blood and spleen.

TEXT BOOKS.—Reginald Miller's Medical Diseases of Children. Robert Hutchinson's Lectures on Diseases of Children.

## 2.—CLINICAL INSTRUCTION.

#### EASTER TERM.

*Monday at 2.30 p.m.*

In connexion with the above course of lectures, clinical instruction will be given at the Fleming Memorial Hospital for Sick Children.

## THERAPEUTICS.

Professor THOMAS BEATTIE, M.D., M.R.C.P., Senior  
Physician to the Royal Victoria Infirmary.

EASTER TERM.

*Monday, Wednesday, and Thursday at 4 p.m.*

Definitions and range of subject. The therapeutic actions and uses of the materia medica. The writing of prescriptions. Methods of administration of drugs. Food and dietetics. Hydrotherapy and balneotherapy. Climates and health resorts. Organotherapy. Serums, vaccines and toxines. Electrotherapy, massage and physical exercises. Surgical procedures. The application of the various therapeutic measures to functional disorders and diseased conditions.

TEXT BOOK.—The Principles of Treatment, by J. Mitchell Bruce.

## DERMATOLOGY.

ROBERT A. BOLAM, M.D., M.R.C.P., Physician to the Department for Diseases of the Skin, Royal Victoria Infirmary.

1. LECTURES.

EASTER TERM.

*Tuesday and Thursday at 5 p.m.*

EXTENT OF COURSE.—The normal skin and its care in health. Pathological processes. Essentials of treatment. The chief features of the commonly occurring diseases of the skin.

TEXT BOOKS.—Norman Walker, Introduction to Dermatology. Sir Malcolm Morris, Diseases of the Skin. J. H. Sequeira, Diseases of the Skin.

2.—CLINICAL INSTRUCTION.

*Tuesday and Friday at 9 a.m.*

Demonstrations on diseases of the skin are given by Dr. Bolam in the department for diseases of the skin at the Royal Victoria Infirmary.

Clinical assistants in the department are appointed from among the senior students every three months—in March, June, September, and December.

## **ERRATA** (pages 110-111).

**The Lectures on Dermatology are given during Epiphany term, and those on Diseases of Throat, Nose and Ear during Michaelmas term.**



## DISEASES OF THE THROAT, NOSE AND EAR.

S. S. WHILLIS, M.D., B.S., Surgeon in charge of the Throat, Nose and Ear Department, Royal Victoria Infirmary.

### 1.—LECTURES.

#### EASTER TERM.

*Tuesday and Thursday at 5 p.m.*

Anatomy and physiology of the nose. Examination of nasal passages. Diseases of the nose and their treatment. Diseases of the pharyngeal tonsil. Post-nasal adenoids. Larynx. Anatomy and physiology of the ear. Examination of the ear. Diseases of the ear and their treatment.

TEXT BOOKS.—W. Lamb, Practical Guide to the Diseases of the Throat, Nose and Ear (3rd edition); P. Watson Williams, Rhinology: A text book of the Diseases of the Nose and Nasal Accessory Sinuses.

### 2.—CLINICAL INSTRUCTION.

*Tuesday and Friday at 10 a.m.*

Clinical instruction is given by Mr. Whillis and Mr. W. F. Wilson at the Royal Victoria Infirmary.

Clinical assistants are appointed from among the senior students every three months—in March, June, September, and December.

## VACCINATION.

Instruction in vaccination is given by Dr. Frank Hawthorn, Government Teacher and Examiner in Vaccination, at the Dispensary, Nelson Street, Newcastle, on Wednesdays, between 3 and 4 o'clock p.m. The student must attend one day a week for six consecutive weeks.



### ANÆSTHETICS.

The administration of anæsthetics is taught by the Anæsthetists to the Royal Victoria Infirmary, and every student should take the opportunity of clerking for one of the Anæsthetists for a period of one month.

### DENTISTRY.

Mr. De Lacey attends in the dental department of the Royal Victoria Infirmary on Tuesday and Friday at 4 p.m.

Clinical Assistants to the Dental Surgeon are appointed in March, June, September, and December.

### ELECTRICAL DEPARTMENT.

Demonstrations are given in the electrical department of the Royal Victoria Infirmary daily by Dr. W. D. Arnison.

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## TIME TABLES OF LECTURES AND CLASSES.

## MICHAELMAS TERM.

|                                              | Mon.      | Tues.     | Wed.        | Thurs.      | Fri.      |
|----------------------------------------------|-----------|-----------|-------------|-------------|-----------|
| 1st year.                                    |           |           |             |             |           |
| Chemistry { Lectures .. .. .                 | 11-12     | —         | 11-12       | —           | 11-12     |
| { Laboratory work .. .                       | —         | —         | —           | 11-1        | —         |
| Physics. Lectures .. .. .                    | —         | 10-11     | —           | —           | —         |
| Biology { Lectures .. .. .                   | —         | 12-1      | —           | 10-11       | —         |
| { Laboratory work .. .                       | —         | 2-5       | —           | 2-5         | —         |
| Anatomy. { Lectures .. .. .                  | 12-1      | —         | —           | —           | 12-1      |
| { Practical work .. .                        | 9-5       | 9-5       | 9-5         | 9-5         | 9-5       |
| 2nd year.                                    |           |           |             |             |           |
| Anatomy { Lectures .. .. .                   | —         | 12-1      | 12-1        | 12-1        | —         |
| { Practical work .. .                        | 9-5       | 9-5       | 9-5         | 9-5         | 9-5       |
| { Demonstrations .. .                        | —         | —         | 4-5         | 4-5         | 4-5       |
| Physiology { Lectures .. .. .                | 10-11     | —         | 10-11       | —           | 11-12     |
| { Laboratory work .. .                       | —         | 10-12     | —           | 10-12       | 9-30-11   |
| 3rd year.                                    |           |           |             |             |           |
| Pathology { Lectures .. .. .                 | 3-4       | 2-30-3-30 | —           | —           | —         |
| { Laboratory work .. .                       | 4-5       | —         | —           | —           | 3-5       |
| { Demonstrations in P.M. room .. .           | 11        | 11        | 11          | 12-30       | 11        |
| Bacteriology { Lectures .. .. .              | 2-3       | —         | —           | —           | —         |
| { Laboratory work .. .                       | —         | —         | —           | 2-4         | —         |
| Public Health. Lectures .. .. .              | —         | 4-5       | —           | 4-5         | —         |
| 4th and 5th years.                           |           |           |             |             |           |
| Medicine { Lectures .. .. .                  | 4-15-5-15 | —         | 4-15-5-15   | —           | 4-15-5-15 |
| { Clinical lectures .. .. .                  | —         | —         | 11-30-12-30 | —           | —         |
| Surgery { Lectures .. .. .                   | 5-15-6-15 | —         | 5-15-6-15   | —           | 5-15-6-15 |
| { Clinical lectures .. .. .                  | —         | —         | —           | 11-30-12-30 | —         |
| Midwifery. Lectures .. .. .                  | —         | 3-4       | 3-4         | 3-4         | —         |
| Medical and Surgical applied Anatomy .. .. . | 2-15-3-15 | 2-15-3-15 | —           | —           | —         |
| Morbid anatomy { Surgical .. .. .            | 3-4       | —         | —           | —           | —         |
| { Medical .. .. .                            | —         | 2-3       | —           | —           | —         |
| Diploma in Public Health.                    |           |           |             |             |           |
| Bacteriology .. .. .                         | 2-5       | 2-5       | 2-5         | —           | 2-5       |

## EPIPHANY TERM.

|                                      | Mon.      | Tues.     | Wed.        | Thurs.      | Fri.      |
|--------------------------------------|-----------|-----------|-------------|-------------|-----------|
| <b>1st year.</b>                     |           |           |             |             |           |
| Chemistry { Lectures.. .. .          | 11-12     | —         | 11-12       | —           | 11-12     |
| Laboratory work.. ..                 | —         | —         | —           | 11-1        | —         |
| Physics { Lectures.. .. .            | —         | 10-11     | —           | —           | —         |
| Laboratory work.. ..                 | —         | —         | —           | —           | —         |
| Biology { Lectures .. .. .           | —         | 12-1      | —           | 10-11       | —         |
| Laboratory work.. ..                 | —         | 2-5       | —           | 2-5         | —         |
| Anatomy. { Lectures .. .. .          | 12-1      | —         | 12-1        | —           | 12-1      |
| Practical work.. ..                  | 9-5       | 9-5       | 9-5         | 9-5         | 9-5       |
| <b>2nd year.</b>                     |           |           |             |             |           |
| Anatomy { Lectures .. .. .           | —         | 12-1      | —           | 12-1        | —         |
| Practical work .. ..                 | 9-5       | 9-5       | 9-5         | 9-5         | 9-5       |
| Demonstrations.. ..                  | —         | —         | 4-5         | 4-5         | 4-5       |
| Physiology { Lectures .. .. .        | 10-11     | —         | 10-11       | —           | 11-12     |
| Laboratory work .. ..                | —         | 10        | —           | 10          | 9-30      |
| <b>3rd year.</b>                     |           |           |             |             |           |
| Pathology { Lectures .. .. .         | 3-4       | 2-30-3-30 | —           | —           | —         |
| Laboratory work .. ..                | 4-5       | —         | —           | —           | 3-5       |
| Demonstrations in P.M. room .. ..    | 11        | 11        | 11          | 12-30       | 11        |
| Bacteriology { Lectures .. .. .      | 2-3       | —         | —           | —           | —         |
| Laboratory work .. ..                | —         | —         | —           | 2-4         | —         |
| Public Health. Lectures .. ..        | —         | 4-5       | —           | 4-5         | —         |
| <b>4th and 5th years</b>             |           |           |             |             |           |
| Medicine { Lectures .. .. .          | 4-15-5-15 | —         | 4-15-5-15   | —           | 4-15-5-15 |
| Clinical lectures .. ..              | —         | —         | 11-30-12-30 | —           | —         |
| Surgery { Lectures .. .. .           | 5-15-6-15 | —         | 5-15-6-15   | —           | 5-15-6-15 |
| Clinical lectures .. ..              | —         | —         | —           | 11-30-12-30 | —         |
| Gynaecology. Lectures .. ..          | —         | 3-4       | 3-4         | 3-4         | —         |
| Diseases of children. Lectures .. .. | —         | —         | —           | —           | 3-4       |
| Morbid anatomy { Surgical.. .. .     | 3-4       | —         | —           | —           | —         |
| demonstrations { Medical.. .. .      | —         | 2-3       | —           | —           | —         |
| <b>Diploma in Public Health.</b>     |           |           |             |             |           |
| Chemistry .. .. .                    | 2-5       | 2-5       | 2-5         | —           | —         |
| Physics.. .. .                       | —         | —         | —           | —           | 10-1      |

## **ERRATA** (page 115).

**The Lectures on Diseases of the Skin are given during Epiphany term and those on Throat, Nose and Ear during Michaelmas term.**



## EASTER TERM.

|                                       | Mon.         | Tues.        | Wed.         | Thurs.       | Fri. |
|---------------------------------------|--------------|--------------|--------------|--------------|------|
| 1st year.                             |              |              |              |              |      |
| Chemistry. Laboratory work .. ..      | 10-5         | —            | 10-1         | —            | —    |
| Physics { Lectures .. .. .            | —            | 10-11        | —            | —            | —    |
| { Laboratory work .. ..               | —            | —            | 2-5          | 10-1         | 10-1 |
| 2nd year.                             |              |              |              |              |      |
| Anatomy { Demonstrations .. ..        | 12-1         | —            | 12-1         | —            | 12-1 |
| { Practical work .. ..                | 9-5          | 9-5          | 9-5          | 9-5          | 9-5  |
| Physiology. Laboratory work .. ..     | 9-30         | —            | 9-30         | —            | 9-30 |
| 3rd year.                             |              |              |              |              |      |
| Pathology { Lectures .. .. .          | 3-4          | 2-30-3-30    | —            | —            | —    |
| { Laboratory work .. ..               | —            | —            | —            | —            | 2-4  |
| { Demonstrations in P.M. room .. ..   | 11           | 11           | 11           | 11-30        | 11   |
| Bacteriology { Lectures .. .. .       | 2-3          | —            | —            | —            | —    |
| { Laboratory work .. ..               | —            | —            | —            | 2-4          | —    |
| Materia medica. Lectures .. ..        | 4-5          | —            | 4-5          | —            | 4-5  |
| Medical jurisprudence. Lectures ..    | 5-6          | —            | 5-6          | —            | 5-6  |
| 4th and 5th years.                    |              |              |              |              |      |
| Medicine. Clinical lectures .. ..     | —            | —            | 11-30-12-30  | —            | —    |
| Psychological { Lectures .. .. .      | —            | —            | —            | 2-3          | —    |
| medicine { Clinical practice .. ..    | —            | —            | —            | —            | 2-45 |
| Surgery { Clinical lectures .. ..     | —            | —            | —            | 11-30-12-30  | —    |
| { Operative surgery .. ..             | 8-30 or 3-30 | 8-30 or 3-30 | 8-30 or 3-30 | 8-30 or 3-30 | —    |
| Ophthalmology. Lectures .. ..         | —            | 4-30-5-30    | —            | 4-30-5-30    | —    |
| Therapeutics. Lectures .. ..          | 4-5          | —            | 4-5          | 4-5          | —    |
| Diseases of the skin. Lectures .. ..  | —            | 5-6          | —            | 5-6          | —    |
| Diseases of the throat, etc. Lectures | —            | 5-6          | —            | 5-6          | —    |



# VISITING DAYS, &c., AT THE ROYAL VICTORIA INFIRMARY, 1914-15.

|                              | M.                 | TU.               | W.              | TH.             | F.                | S.                 |
|------------------------------|--------------------|-------------------|-----------------|-----------------|-------------------|--------------------|
| In-Patient Department.       |                    |                   |                 |                 |                   |                    |
| Physicians:—                 |                    |                   |                 |                 |                   |                    |
| Dr. T. Beattie .. ..         | —                  | 10                | —               | —               | 10 <sub>a</sub>   | —                  |
| Dr. W. E. Hnmc .. ..         | —                  | 10                | —               | —               | —                 | 10 <sub>a</sub>    |
| Dr. H. Drummond .. ..        | 10                 | —                 | —               | 10 <sub>a</sub> | —                 | —                  |
| Dr. A. Parkin .. ..          | —                  | —                 | 10 <sub>a</sub> | —               | 10                | —                  |
| Surgeons:—                   |                    |                   |                 |                 |                   |                    |
| Mr. A. M. Martin .. ..       | —                  | 10 <sub>a</sub>   | 10 <sub>b</sub> | —               | 10 <sub>b</sub>   | —                  |
| Mr. H. B. Angus .. ..        | 11·30 <sub>a</sub> | 9·30 <sub>b</sub> | —               | —               | 9·30 <sub>b</sub> | —                  |
| Mr. J. V. W. Rutherford .    | —                  | 10 <sub>b</sub>   | 10 <sub>a</sub> | 10 <sub>b</sub> | —                 | —                  |
| Mr. W. G. Richardson ..      | —                  | —                 | 10 <sub>b</sub> | —               | 10 <sub>a</sub>   | 10 <sub>b</sub>    |
| Out-Patient Department.      |                    |                   |                 |                 |                   |                    |
| Assistant Physicians:—       |                    |                   |                 |                 |                   |                    |
| Dr. G. Hall .. ..            | —                  | —                 | —               | —               | —                 | 9                  |
| Dr. T. M. Allison .. ..      | —                  | —                 | 9               | —               | —                 | —                  |
| Dr. D. W. Patterson .. ..    | 9                  | —                 | —               | —               | —                 | —                  |
| Dr. T. C. Hunter .. ..       | —                  | —                 | —               | 9               | —                 | —                  |
| Assistant Surgeons:—         |                    |                   |                 |                 |                   |                    |
| Mr. J. W. Leech .. ..        | —                  | —                 | 10              | —               | —                 | 10 <sub>b</sub>    |
| Mr. John Clay .. ..          | —                  | —                 | —               | 10 <sub>b</sub> | 9                 | —                  |
| Mr. G. Grey Turner .. ..     | 9                  | —                 | —               | —               | 9·30 <sub>b</sub> | —                  |
| Mr. R. J. Willan .. ..       | —                  | —                 | —               | 9 <sub>b</sub>  | —                 | 9                  |
| Medical Clinical Lecture ..  | —                  | —                 | 11·30           | —               | —                 | —                  |
| Surgical .. ..               | —                  | —                 | —               | 11·30           | —                 | —                  |
| Medical Tutorial Class .. †  | —                  | —                 | —               | —               | —                 | —                  |
| Surgical .. .. †             | —                  | —                 | —               | —               | —                 | —                  |
| Eye Department:—             |                    |                   |                 |                 |                   |                    |
| Mr. J. D. Wardale .. ..      | 9                  | 9 <sub>b</sub>    | —               | 9               | —                 | 9                  |
| Mr. T. Gowans (Assist.) }    |                    |                   |                 |                 |                   |                    |
| Skin Department:—            |                    |                   |                 |                 |                   |                    |
| Dr. R. A. Bolam .. ..        | —                  | 9                 | —               | —               | 9                 | —                  |
| Diseases of Women :          |                    |                   |                 |                 |                   |                    |
| Dr. R. P. Ranken Lyle ..     | 9·30 <sub>b</sub>  | 9                 | —               | 9               | —                 | —                  |
| Throat and Ear Department :  |                    |                   |                 |                 |                   |                    |
| Mr. S. S. Whillis .. ..      | —                  | 10                | 10 <sub>b</sub> | —               | 10                | 10·30 <sub>b</sub> |
| Mr. W. F. Wilson (Assist.) } |                    |                   |                 |                 |                   |                    |
| Electrical Department :      |                    |                   |                 |                 |                   |                    |
| Dr. W. D. Arnison .. ..      | 9·30               | 9·30              | 9·30            | 9·30            | 9·30              | 9·30               |

<sup>a</sup> Teaching Days. <sup>b</sup> Operation Days. † Times to be announced.

# TIME TABLE OF LECTURES, &c., AT THE NEWCASTLE-UPON-TYNE DENTAL HOSPITAL.

## MICHAELMAS AND EPIPHANY TERMS.

|                                  | Mon.   | Tues.     | Wed.    | Thur.     |
|----------------------------------|--------|-----------|---------|-----------|
| Dental anatomy and physiology .. | —      | 3 p.m.    |         | 3 p.m.    |
| Dental mechanics .. ..           | —      |           | 12 noon | —         |
| Dental metallurgy .. ..          | 5 p.m. |           | —       | 5 p.m.    |
| Dental surgery and pathology ..  | —      | 5.15 p.m. | —       | 5.15 p.m. |
| Operative dental surgery ..      | —      | —         | —       | 4.30 p.m. |
| Orthodontia .. ..                | —      | —         | —       | 4 p.m.    |

## EASTER TERM.

|                                              | Tues.  | Wed.       |
|----------------------------------------------|--------|------------|
| Dental anaesthetics ..                       | —      | 12.15 p.m. |
| Dental materia medica and therapeutics . . . | —      | 4.45 p.m.  |
| Dental microscopy and histology .. ..        | 5 p.m. | —          |

# VISITING DAYS, &c., AT THE NEWCASTLE-UPON-TYNE DENTAL HOSPITAL.

|              | Honorary Dental Surgeons.  | Honorary Assistant Dental Surgeons.            |
|--------------|----------------------------|------------------------------------------------|
| Monday ..    | Mr. J. W. Daniels .. ..    | { Mr. A. M. Laing and<br>Mr. R. M. Weatherson. |
| Tuesday ..   | Mr. J. T. Jameson .. ..    | { Mr. C. Lotinga and<br>Mr. E. Y. Richardson.  |
| Wednesday .. | Mr. J. Coltman .. ..       | { Mr. A. Jameson and<br>Mr. R. B. Recordon.    |
| Thursday ..  | Mr. T. R. D. Walkinshaw .. | { Mr. E. Gibbon and<br>Mr. J. L. Scott.        |
| Friday ..    | Mr. C. L. Routledge .. ..  | { Mr. E. R. Cooper and<br>Mr. L. M. Markham.   |
| Saturday ..  | Mr. T. R. Haggarty .. ..   | { Mr. J. Bolam and<br>Mr. H. Davis.            |

## FEES.

*All fees, except where otherwise stated, are payable to*

*Professor R. HOWDEN,*

*Secretary of the University of Durham College of Medicine,  
Newcastle-upon-Tyne.*

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### 1.—For lectures and laboratory work,

#### A. FOR THE DEGREES OF M.B., B.S.

A composition ticket for a complete course of lectures and laboratory work at the College may be obtained :—

- (i.) by the payment of 80 guineas on entrance.
- (ii.) by two payments, viz. :—50 guineas at the commencement of the first year, and 40 guineas at the commencement of the second year.
- (iii.) by the payment of three annual instalments, the first of 40 guineas, the second of 33 guineas, and the third of 22 guineas, at the commencement of the corresponding academic years.

A composition ticket for the courses of lectures and laboratory work of the first two years of the curriculum may be obtained by the payment of 42 guineas on entrance.

*It is clearly to be understood that the payment of the composition fee does not confer the right to attend the College in perpetuity, and if, after the completion of his curriculum, the further attendance of a student shall be deemed from any cause undesirable, the Council have the right, if they think proper, to debar such student from further attendance.*

In the event of a student desiring to take out individual courses, he will be required to pay special fees as follows :—

Single courses of lectures, 5 guineas [except those of (*a*) practical pharmacy, (*b*) diseases of the skin, (*c*) diseases of the throat, nose and ear, and (*d*) diseases of children, each of which is 2 guineas]. Students may attend second courses of instruction at the fee of 2 guineas for each course. The fee for dissections is 3 guineas in Winter and 2 guineas

in the Summer. Students who are not taking out a course of dissections may attend the demonstrations on Anatomy, and read in the dissecting room, on payment of a fee of 1 guinea a term.

### B. FOR THE DEGREE OF B.HY. AND DIPLOMA IN PUBLIC HEALTH.

The fee for three months' instruction in the chemical and physical laboratories is 6 guineas, and for three months' instruction in the bacteriological laboratory, 6 guineas. Students may attend a second course of instruction in these subjects at the fee of 4 guineas for each course.

### C. FOR THE DIPLOMA IN PSYCHIATRY.

A composition ticket for the courses of instruction for the diploma in Psychiatry may be obtained on payment of a fee of 25 guineas.

The fees for the individual courses of instruction for the diploma in Psychiatry are as follows :—Anatomy, £2 2s. ; Physiology, &c., £6 6s. ; Pathology, £4 4s. ; Bacteriology, £6 6s. ; Psychology and Experimental Psychology, £5 5s. ; Clinical Neurology, £2 2s. ; Psychiatry, £2 2s. ; Clinical Psychiatry, £2 2s.

### 2.—For Hospital Practice at the Royal Victoria Infirmary :—

|              |     |     |     |     |     |           |
|--------------|-----|-----|-----|-----|-----|-----------|
| One Month    | ... | ... | ... | ... | ... | 2 Guineas |
| Two Months   | ..  | ... | ... | ... | ... | 4 „       |
| Three Months | ... | ... | ... | ... | ... | 6 „       |
| Six Months   | ... | ... | ... | ... | ... | 10 „      |
| One Year     | ... | ... | ... | ... | ... | 15 „      |

A composition ticket for three years may be obtained—

|                           |     |     |             |            |
|---------------------------|-----|-----|-------------|------------|
| I. By a single payment of | ... | ... | ...         | 35 guineas |
| II. By two payments of    | ... | {   | First Year, | 20 „       |
|                           | ... |     | Second „    | 18 „       |

In addition to the above fees the following are payable to the financial secretary of the Royal Victoria Infirmary, viz. : (a) for six months, or any shorter period, of Hospital

practice, £1 1s. 0d. ; (b) for twelve months, or longer, £2 2s. 0d. annually. (After three years attendance this annual payment ceases.)

*The payment of a composition fee does not confer the right to attend hospital practice in perpetuity, and if, after the completion of his curriculum, the further attendance of a student shall be deemed from any cause undesirable, the Medical Board of the Royal Victoria Infirmary have the right, if they think proper, to debar such student from further attendance.*

The following fees are payable for special short courses of study at the Royal Victoria Infirmary :—For Anæsthetics, 14 days, 1 guinea ; 21 days, a guinea and a half ; one month, 2 guineas. Short courses of 3 months, in any one of the special departments, 3 guineas. In addition 1 guinea must be paid to the Committee of the Royal Victoria Infirmary before registering.

### 3.—ADDITIONAL FEES AND DUES.

|                                                                                                  | £ | s. | d. |
|--------------------------------------------------------------------------------------------------|---|----|----|
| a.—For each “ part ” dissected ... ..                                                            | 0 | 10 | 6  |
| β—For material used in the class of operative surgery ... ..                                     | 0 | 10 | 6  |
| γ.—Library ... ..                                                                                | 0 | 15 | 0  |
| (Students attending the College for one year only pay 10s.)                                      |   |    |    |
| δ.—For attendance on the practice of the hospital for infectious diseases ... ..                 | 2 | 2  | 0  |
| <i>Payable to Dr. H. Kerr, Town Hall, Newcastle-upon-Tyne.</i>                                   |   |    |    |
| ε.—For three months clinical instruction in Midwifery at the Newcastle Maternity Hospital ... .. | 4 | 4  | 0  |
| <i>Payable to the Obstetric Physicians of the Hospital.</i>                                      |   |    |    |
| ζ.—For a course of instruction in Vaccination ...                                                | 1 | 11 | 6  |
| <i>Payable to Dr. F. Hawthorn, The Dispensary, Newcastle-upon-Tyne.</i>                          |   |    |    |

|                                                                                                                                                                        | £ | s. | d. |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|----|----|
| η.—Caution money, to be returned at the end of the year, less the cost of any loss or damage, is payable by students taking chemistry and physics at Armstrong College | 1 | 0  | 0  |
| θ.—Hire of apparatus in the chemical laboratories                                                                                                                      | 0 | 2  | 6  |
| ι.—Every student is required to pay to the Secretary of the College an annual club fee of ...                                                                          | 2 | 12 | 6  |
| The fee covers the subscriptions to the Athletic Club, the Students' Medical Society, and the College Gazette.                                                         |   |    |    |

|                                                                                                                                                                                                   |    |   |   |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|---|---|
| Degree of B.Hy. and diploma in Public Health :—                                                                                                                                                   |    |   |   |
| For six months' out-door sanitary work, under the Medical Officer of Health for Newcastle-upon-Tyne, and attendance on the practice of the Hospital for Infectious Diseases at Walker Gate ... .. |    |   |   |
|                                                                                                                                                                                                   | 21 | 0 | 0 |
| <i>Payable to Dr. Kerr, Town Hall, Newcastle-upon-Tyne.</i>                                                                                                                                       |    |   |   |

#### 4.—FOR EXAMINATIONS.

|                                                                  | £  | s. | d. |
|------------------------------------------------------------------|----|----|----|
| Matriculation ... ..                                             | 1  | 10 | 0  |
| First examination for the degree of M.B. ... ..                  | 5  | 0  | 0  |
| Second examination for the degree of M.B. ... ..                 | 5  | 0  | 0  |
| Third examination for the degree of M.B. ... ..                  | 5  | 0  | 0  |
| Final examination for the degree of M.B. ... ..                  | 10 | 0  | 0  |
| Examination for the degree of M.D. ( <i>Essay</i> ) ... ..       | 5  | 0  | 0  |
| Examination for the degree of M.D. ( <i>Practitioners</i> )* ... | 52 | 10 | 0  |
| Examination for the degree of B.S. ... ..                        | 5  | 0  | 0  |
| Examination for the degree of M.S. ... ..                        | 5  | 0  | 0  |
| Examination for the degree of B.Hy. ... ..                       | 10 | 10 | 0  |
| Examination for the degree of D.Hy. ... ..                       | 5  | 0  | 0  |
| Examination for the diploma in public health † ...               | 10 | 10 | 0  |
| Examination for the diploma in psychiatry † ...                  | 10 | 10 | 0  |
| First examination for the licence in dental surgery ...          | 2  | 10 | 0  |
| Second examination for the licence in dental surgery ...         | 2  | 10 | 0  |
| Third examination for the licence in dental surgery ...          | 3  | 10 | 0  |
| Final examination for the licence in dental surgery ...          | 3  | 10 | 0  |

\* This fee includes the fee for the degree of M.D. Twenty guineas are retained in the event of the candidate failing to pass the examination.

† This amount includes the fee for the diploma.



## 5.—FOR DEGREES.

*Fees for degrees are payable to the Treasurer of the University.*

|                                       | £ | s. | d. |
|---------------------------------------|---|----|----|
| Degree of Bachelor of Medicine ... .. | 6 | 6  | 0  |
| Degree of Doctor of Medicine* ... ..  | 6 | 6  | 0  |
| Degree of Bachelor of Surgery ... ..  | 6 | 6  | 0  |
| Degree of Master of Surgery ... ..    | 6 | 6  | 0  |
| Degree of Bachelor of Hygiene ... ..  | 6 | 6  | 0  |
| Degree of Doctor of Hygiene ... ..    | 6 | 6  | 0  |

## 6.—FOR THE LICENCE IN DENTAL SURGERY.

*This fee is payable to the Treasurer of the University.*

|                                          | £ | s. | d. |
|------------------------------------------|---|----|----|
| For the licence in dental surgery ... .. | 3 | 0  | 0  |

## DATES OF EXAMINATIONS IN 1915.

|                                                                    |          |          |
|--------------------------------------------------------------------|----------|----------|
| Matriculation ... ..                                               | June 29  | Sept. 21 |
| First examination for the degree of M.B. ...                       | March 15 | June 21  |
| Second examination for the degree of M.B. ...                      | March 15 | June 21  |
| Third examination for the degree of M.B. ...                       | March 18 | June 21  |
| Final examination for the degree of M.B. ...                       | March 18 | June 10  |
| Examination for the degree of M.D. ( <i>Essay</i> )                | March 24 | June 16  |
| Examination for the degree of M.D. ( <i>Practitioners</i> ) ... .. | March 18 | June 10  |
| Examination for the degree of B.S. ... ..                          | March 24 | June 16  |
| Examination for the degree of M.S. ... ..                          | March 18 | June 10  |
| Examination for the degree of B.Hy. ... ..                         | March 12 | June 4   |
| Examination for the degree of D.Hy. ( <i>Essay</i> )               | March 16 | —        |
| Examination for the diploma in public health                       | March 12 | June 4   |
| Examination for the diploma in psychiatry ...                      | —        | June 21  |
| First examination for the licence in dental surgery ... ..         | March 15 | June 21  |
| Second examination for the licence in dental surgery ... ..        | March 15 | June 21  |
| Third examination for the licence in dental surgery ... ..         | March 15 | June 21  |
| Final examination for the licence in dental surgery ... ..         | March 18 | June 10  |

\* If conferred *in absentia* the candidate must pay an additional fee of £3.

## STUDENTS' SOCIETIES, CLUBS, ETC.

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The Athletic Club is managed by the Students' Representative Council and is intended to promote Athletic Pursuits, viz. : Football (Association and Rugby), Hockey, Cricket, Tennis, Swimming, etc. The Club Ground, about six acres in extent, is provided with a comfortable pavilion, while a professional groundsman is in constant attendance.

The Medical Society holds its meetings in the Royal Victoria Infirmary during the winter session. At these meetings papers are read and clinical cases discussed.

The College Gazette is published once a month during term time.

A Newcastle division of the Durham University Union has been established, with its headquarters at College Villa, Eldon Street. Fee for membership, £1 1s. per annum.

The students' rooms and gymnasium are situated in the Heath wing.

A large, well-furnished common room is provided in the College for women students.

LODGINGS.—A list of lodgings suitable for Students is kept by the Secretary of the College.

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# LIST OF STUDENTS.

## ACADEMIC YEAR, 1913-1914.

|                                       |                                         |
|---------------------------------------|-----------------------------------------|
| Adie, George Carl                     | Cuff, Cyril Charles Herbert             |
| Alexander, John Neville               | Cummings, Ishmael Gustavus              |
| Anderson, Ewart Gordon                | Daniel, Stephaine Patricia              |
| Anderson, Percy Vernon                | Laline Hunte Taylour                    |
| Anderson, Samuel Eric Hill            | Dingle, Hugh John                       |
| Angus, Alan                           | Dove, Arthur Farrell Renner             |
| Armstrong, Cyril                      | Dove, Horace George Bennett             |
| Barclay, John Hamilton, M.B.,<br>B.S. | Duncan, William                         |
| Barkas, Thomas Leslie                 | Dunlop, Ernest Craig                    |
| Braithwaite, Norman                   | Egerton, Geoffrey Bede                  |
| Bell, Douglas George Patrick          | Ellis, George Wilfrid                   |
| Bell, Hedley                          | Erdberg, Mordecai Jacob                 |
| Bell, Wm.                             | Evans, Idris David                      |
| Bell, Edgar Frederick Herbert         | Evers, Henry                            |
| Berkeley-Cole, George Albert          | Ferguson, Roy                           |
| Berry, James Allan                    | Fleming, Gerald William                 |
| Blench, Thomas Henry                  | Thomas Hunte                            |
| Boyd, William                         | Freedman, Wallace Alexander             |
| Bramley, Ernest                       | Frere, Lionel Basil                     |
| Brew, Richard Vere                    | Gilbertson, Albert James,<br>M.B., B.S. |
| Brewis, John Arthur Gardner           | Gilbertson, Frederick John              |
| Broadhurst, Harry Cecil               | Gilmour, John                           |
| Brumwell, John                        | Girgis, Eskander                        |
| Brown, Joseph Jopling, M.B.,<br>B.S.  | Girgis, Ibrahim                         |
| Browne, Leonard Foster, M.D.          | Gordon, Mary Sarah                      |
| Brydson, John Maurice                 | Goulstine, Samuel Elijah                |
| Butterfield, Arthur                   | Gover, Charles Norman                   |
| Carr, Cecil Colville                  | Graham-Hodgson, Harold<br>Kingston      |
| Campbell, Mary Russell                | Haigh, Ethne                            |
| Charles, Ernest Dewar                 | Hall, Giles Arthur Michael              |
| Charles, John Alexander               | Hall, William                           |
| Charlton, John Macfarlan              | Hammond, Gabriel Jonas<br>Downona       |
| Chatterji, Sujan Raj                  | Harlow, Frank Wilson                    |
| Clark, George Albert                  | Harper, Maurice Henry de<br>Jersey      |
| Clark, James Struthers                | Harrison, Alexander Thomas              |
| Clements, Patrick Alexander           | Hearn, Douglas Ethelbert                |
| Clifford-Smith, Harold Charles        | Henegan, Donald                         |
| Craig, Roy Neville                    |                                         |
| Coxon, Nan                            |                                         |

Henggan, Mary Kathleen  
 Herbertson, William, B.Sc.  
 Hewitson, William Andrew  
 Hickey, Patrick  
 Hinde, Harry Graham  
 Hindmarsh, Thomas Albert,  
   M.B., B.S.  
 Hocken, Donald Falconer  
 Hooper, Reginald Arthur  
 Hopgood, Tom Merchant  
 Horsley, John  
 Hughes, James Richard, B.A.  
 Humphreys, Arthur Idwal  
 Hunter, Reginald  
 Hutson, Selby  
 Hyden, George Eric  
 Ingram-Johnson, Reginald  
   James Theodore  
 Iredale, Lawrence Heber  
   Warneford  
 Irving, George  
 Irwin, Charles Gordon  
 Jacobs, Cyril  
 Jaques, William Arthur  
 Johnson, James Dixon  
 Joseph, Cecil Neild  
 Joynt, Malcolm Cyril  
 Kamel, Hamed  
 Keay, Charles Henry  
 Khedkar, Raghunath Vithal  
   L.R.C.P. and S.  
 Kidd, Robert Frederick  
 Kirsopp, Thomas  
 Laing, Wallace  
 Landells, John Kerr Ritchie  
 Larkin, Frederick William  
 Lau, Edward Ek Dun  
 Leete, Harold Mason  
 Leigh, Hubert Vere, M.R.C.S.,  
   L.R.C.P.  
 Levinstein, David  
 Lewis, David Rhys  
 Liddell, James Leslie  
 Lishman, Robt. Rutherford  
 MacPhail, Hector Duncan,  
   M.D.  
 Mansoor, Malik Abdur Rah-  
   man  
 Magee, Leo  
 Markham, Hubert Ransome  
 Marks, Aaron Gompertz

Martin, Norman Alexander  
 Marriott, Phyllis  
 Maughan, Allan  
 McFarlane, Andrew Govan  
 Measham, John Eric  
 Melrose, Robert Graham  
 Merewether, Edward Row-  
   land Alworth  
 Metcalfe, Francis  
   Metcalfe, Harold Armstrong  
 Metzger, George Nathaniel,  
   B.A.  
 Millar, Reginald Stanley  
 Mitcheson, William George  
 Moor, Henry  
 Munro, Frederic Finlay  
 Murphy, Nora, M.B., B.S.  
 Murphy, Peter  
 Murray, Sydney Ellington,  
   M.B., B.S.  
 Naismith, Robert Turnbull  
   Easton  
 Natrass, Frederick John  
 Newman, Carl Damien  
 Newman, Freda  
 Newton, Gerald Douglas  
 Oliver, Hugh Dickinson Oliver  
 Pailthorpe, Grace Winifred  
 Park, Robert Douglas  
 Parker, Ernest Charles Gil-  
   christ  
 Patterson, Arthur  
 Pettigrew, William McDonald  
 Philip, George Fleming  
 Phillips, Charles Burton  
 Phillips-Jones, James Melville  
 Pirrie, Ivan Miller  
 Pirrie, Robert Bourn  
 Playfair-Robertson, Home Alex.  
 Price, Walter Henry  
 Proud, John Dover  
 Proud, William Joseph  
 Pybus, Ruth  
 Raine, Arthur Edwin  
 Reed, Gainsford  
 Rishworth, Walter Nettlewood,  
   M.B., B.Ch. Dub.  
 Robertson, George Galloway  
 Robertson, Thomas Wilfred  
 Robson, Frank Blair  
 Russell, William Kerr

- Saleh, Ahmed  
 Saunders, William Eric Roper  
 Savage, Philip  
 Sayce, Douglas Edward  
 Scott, Douglas Brogden  
 Scott, Ralph Roylance  
 Sergeant, Bertram  
 Shalaby, Kamel Ibrahim  
 Shanley, George Howard  
 Shaw, Thomas Wilson  
 Shehid, Sadek Abdel  
 Sinclair, William Oxley  
     Forster  
 Smirthwaite, Alfred  
 Smith, Andrew  
 Smith, John Thomas  
 Smith, Kirton Ivor Seager  
 Smith, William  
 Smith, William Robson  
 Smith-Clark, Lizzie Mackay,  
     M.B., Ch.B.  
 Soliman, Iskandar  
 Sopwith, Frank Wesley  
 Somerville-Woodiwis, Lawrence  
 Sparrow, Hugh Gordon  
 Spence, James Calvert  
 Spence, Wilfred Phillipson  
 Stephenson, George Edward  
 Stott, William  
 Strachan, Charles Gordon  
 Steedman, John, M.B., Ch.B.  
 Steel, Matthew Reginald
- Sterne-Howitt, Harold Ivan  
 Studdy, Louis William  
 Sutcliffe, Arthur, B.A.  
 Taylor, Alexander Gordon  
 Taylor, Alfred Cresswell  
 Taylor, Charles Sidney  
 Tavor, Frederick Herbert  
     B.A.  
 Taylor, Herman Louis, M.B.,  
     Ch.B.  
 Thompson, Sydney  
 Thompson, William George,  
     M.D.  
 Tiplady, Thomas Turnbull  
 Todd, Fred Walton  
 Toma, Habib  
 Tweddle, William Arthur  
 Tyrrell, Edgar James  
 Vasey, James William  
 Walker, Cyril Valentine  
 Walther, Hans Wilhelm  
 Wardill, William Edward  
     Mandall  
 Waugh, William Grant, M.D.  
 Wear, Arthur H., M.B., B.S.  
 Welch, Robert, B.Sc.  
 Welsh, Edward Anthony W.  
 Wilkinson, Sidney  
 Wilkinson, Arthur Wilfred  
 Williamson, Edith Short  
 Williamson, Harold  
 Woodhead, George Roebuck
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## Examination Lists.

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### I.—UNIVERSITY EXAMINATIONS

FOR THE ACADEMIC YEAR, 1912-13.

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#### Doctor of Medicine. (Essay.)

MARCH, 1913.

- |                                                                                 |                                                                                                                            |
|---------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|
| Browne, Leonard Foster, M.B.,<br>B.S., Durh.                                    | Ankylostomiasis, with special<br>reference to its occurrence in<br>Egypt.                                                  |
| Campbell, John George, M.A.,<br>M.B., B.S., Durh. ( <i>in absen-<br/>tia</i> ). | Chorea.                                                                                                                    |
| Edgar, William Harold, M.B.,<br>B.S., Durh.                                     | Yangtze fever.                                                                                                             |
| Hodgkinson, Isaiah, M.B.,<br>B.S., Durh.                                        | Acute Poliomyelitis.                                                                                                       |
| Hoyle, James Collings, M.B.,<br>B.S., Durh.                                     | Tuberculosis work and school<br>inspection.                                                                                |
| Mackenzie, Hector Graham<br>Gordon, M.A., M.B., Durh.                           | An investigation into the age<br>and sex incidence of the dif-<br>ferent varieties of malignant<br>disease of the stomach. |
| Melvin, Frank Widowfield,<br>M.B., B.S., Durh.                                  | Tuberculin therapy.                                                                                                        |
| Unthank, William Robert<br>Elstob, M.B., B.S., Durh.                            | Rheumatoid arthritis.                                                                                                      |

JUNE, 1913.

- |                                                       |                                                |
|-------------------------------------------------------|------------------------------------------------|
| Barkes, Wilfred, M.B., B.S.,<br>Durh.                 | Measles.                                       |
| Lloyd, George Errington,<br>M.B., B.S., Durh.         | Clinical heart block.                          |
| M'Gonigle, George Cuthbert<br>Mura, M.B., B.S., Durh. | The diagnosis of appendicitis.                 |
| Sinclair, Matilda Ann, M.B.,<br>B.S., Durh.           | Typhoid fever in childhood and<br>adolescence. |

**Doctor of Medicine.**  
**(Practitioners of Fifteen Years' Standing.)**

MARCH, 1913.

Brown, Daniel Durward, M.R.C.S., L.R.C.P., L.S.A.  
 Coleman, James George Blyth, M.R.C.S., L.R.C.P.  
 Goodridge, Walter Lisle Taylor, M.R.C.S., L.R.C.P.  
 Johnson, Alfred, M.R.C.S., L.R.C.P.  
 Robertson, James Sprent, M.R.C.S., L.S.A.  
 Stanford, William Bedell, M.R.C.S., L.R.C.P.  
 Thomas, Ellis Rae, M.R.C.S., L.R.C.P.  
 Willmore, William Southwick, M.R.C.S., M.R.C.P.

JUNE, 1913.

Alexander, James Whitelaw, M.R.C.P. & S., L.F.P.S., G.  
 Foster, Michael Bernard, M.R.C.S., L.R.C.P., D.P.H.  
 Handy, James Muttyah, L.M. & S., Ceylon.  
 MacIntyre, Edward Tambyah, L.R.C.P. & S., L.F.P.S., G.  
 Price, Richard, L.R.C.P. & S., L.F.P.S., G.  
 Tweedy, Reginald Carlyon, M.R.C.S., L.R.C.P.

**Master of Surgery.**

MARCH, 1913.

Braithwaite, Eldred Curwen, M.B., B.S., B.Hy., D.P.H., Durh.

**Bachelor of Medicine—Final Examination.**

MARCH, 1913.

*Honours—Second Class.*

Arkle, John Stanley, College of Medicine, Newcastle-upon-Tyne.

*Pass List.*

Burrell, Theonie Renée, B.Sc., College of Medicine, Newcastle-upon-Tyne.  
 Clements, William Leitrim, College of Medicine, Newcastle-upon-Tyne.  
 Dodd, Herbert Grantham, College of Medicine, Newcastle-upon-Tyne.  
 Freve, Frederick John Henry Tobias, College of Medicine, Newcastle-upon-Tyne.  
 Henderson, Cyril John, College of Medicine, Newcastle-upon-Tyne.  
 Hickey, William Joseph, College of Medicine, Newcastle-upon-Tyne.



Robson, Charles Henry, College of Medicine, Newcastle-upon-Tyne.

Scott, Sidney, College of Medicine, Newcastle-upon-Tyne.

Steele, Russell Vyvyan, University College, London.

#### JUNE, 1913.

Babst, Edgar, College of Medicine, Newcastle-upon-Tyne.

Bell, Robert Ernest, College of Medicine, Newcastle-upon-Tyne.

Carse, Garfield, College of Medicine, Newcastle-upon-Tyne.

Fairclough, Harold, College of Medicine, Newcastle-upon-Tyne.

Jap, Ah Chit, M.R.C.S., L.R.C.P., College of Medicine, Newcastle-upon-Tyne, and Guy's Hospital.

Kitching, Robert Lacy, St. Bartholomew's Hospital.

Lacey, George Eric Warner, Guy's Hospital.

Morris, Claude Woodham, M.R.C.S., L.R.C.P., University College Hospital.

Murphy, Nora, College of Medicine, Newcastle-upon-Tyne.

O'Neill, Carinna Augusta Barry, College of Medicine, Newcastle-upon-Tyne.

Phillips, Edward, London Hospital.

Pringle, John Logan, College of Medicine, Newcastle-upon-Tyne.

Shackleton, Cedric Overton, College of Medicine, Newcastle-upon-Tyne.

Soutter, James Stewart, M.R.C.S., L.R.C.P., St. Bartholomew's Hospital.

Woodman, Gordon Stewart, College of Medicine, Newcastle-upon-Tyne.

### Bachelor of Surgery.

#### MARCH, 1913.

Arkle, John Stanley, College of Medicine, Newcastle-upon-Tyne.

Burrell, Theonie Renée, B.Sc., College of Medicine, Newcastle-upon-Tyne.

Clements, William Leirim, College of Medicine, Newcastle-upon-Tyne.

Dodd, Herbert Grantham, College of Medicine, Newcastle-upon-Tyne.

Frere, Frederick John Henry Tobias, College of Medicine, Newcastle-upon-Tyne.

Hickey, William Joseph, College of Medicine, Newcastle-upon-Tyne.

Robson, Charles Henry, College of Medicine, Newcastle-upon-Tyne.

Scott, Sidney, College of Medicine, Newcastle-upon-Tyne.

Steele, Russell Vyvyan, University College, London.

## JUNE, 1913.

Babst, Edgar, College of Medicine, Newcastle-upon-Tyne.  
 Carse, Garfield, College of Medicine, Newcastle-upon-Tyne.  
 Fairclough, Harold, College of Medicine, Newcastle-upon-Tyne.  
 Jap, Ah Chit, M.R.C.S., L.R.C.P., College of Medicine, Newcastle-upon-Tyne, and Guy's Hospital.  
 Kitching, Robert Lacy, St. Bartholomew's Hospital.  
 Laeey, George Eric Warner, Guy's Hospital.  
 Morris, Claude Woodham, M.R.C.S., L.R.C.P., University College Hospital.  
 Murphy, Nora, College of Medicine, Newcastle-upon-Tyne.  
 O'Neill, Carinna Augusta Barry, College of Medicine, Newcastle-upon-Tyne.  
 Phillips, Edward, London Hospital.  
 Pringle, John Logan, College of Medicine, Newcastle-upon-Tyne.  
 Shackleton, Cedric Overton, College of Medicine, Newcastle-upon-Tyne.  
 Soutter, James Stewart, M.R.C.S., L.R.C.P., St. Bartholomew's Hospital.  
 Woodman, Gordon Stewart, College of Medicine, Newcastle-upon-Tyne.

## Bachelor of Hygiene.

## MARCH, 1913.

Galpin, Patrick Albert, M.D., B.S., Durh. (*Second Class Honours*).  
 Hudson, William, M.B., B.S., Durh.

## JUNE, 1913.

Norman, Ernest Edward, M.B., B.S., Durh.

## Diploma in Public Health.

## MARCH, 1913.

Galpin, Patrick Albert, M.D., B.S., Durh.  
 Hudson, William, M.B., B.S., Durh.

## JUNE, 1913.

Norman, Ernest Edward, M.B., B.S., Durh.  
 Meredith, Eva, M.D., Ch.B., Edin.

## Licence in Dental Surgery.

MARCH, 1913.

Watt, George Vernon, College of Medicine, Newcastle-upon-Tyne.

JUNE, 1913.

Hutson, William, College of Medicine, Newcastle-upon-Tyne.

## Diploma in Psychiatry,

JUNE, 1913.

Gostwyck, Cecil Hubert Gostwyck, M.B., Ch.B. Ed.

## Bachelor of Medicine—Third Examination.

MARCH, 1913.

MATERIA MEDICA, PHARMACOLOGY AND PHARMACY,  
PUBLIC HEALTH, MEDICAL JURISPRUDENCE,  
PATHOLOGY AND ELEMENTARY BACTERIOLOGY.

*Honours—Second Class.*

Keay, Charles Henry, College of Medicine, Newcastle-upon-Tyne.

*Pass List.*

Clements, Patrick Alexander, College of Medicine, Newcastle-upon-Tyne.

Freeth, Arthur Causton, St. Mary's Hospital and College of Medicine, Newcastle-upon-Tyne.

Hamilton, Charles Stewart Parnell, Charing Cross Hospital.

Harlow, Frank Wilson, College of Medicine, Newcastle-upon-Tyne.

Herbertson, William, B.Sc., College of Medicine, Newcastle-upon-Tyne.

Jap, Ah Chit, M.R.C.S., L.R.C.P., Guy's Hospital.

Morris, Claude Woodham, M.R.C.S., L.R.C.P., University College, London.

Newton, Gerald Douglas, College of Medicine, Newcastle-upon-Tyne.

- Robertson, Home Alexander Playfair, St. Bartholomew's Hospital, and College of Medicine, Newcastle-upon-Tyne.  
 Ryan, Eric Knowles, University of Sheffield.  
 Scott, Donald Charles, Guy's Hospital.  
 Strachan, Charles Gordon, College of Medicine, Newcastle-upon-Tyne.  
 Taylor, Alexander Gordon, College of Medicine, Newcastle-upon-Tyne.  
 Tyrrell, Edgar James, College of Medicine, Newcastle-upon-Tyne.

PUBLIC HEALTH, MEDICAL JURISPRUDENCE,  
 PATHOLOGY AND ELEMENTARY BACTERIOLOGY.

- Bramley, Ernest, College of Medicine, Newcastle-upon-Tyne.  
 MacFarlane, Andrew Govan, College of Medicine, Newcastle-upon-Tyne.  
 Patterson, Arthur, College of Medicine, Newcastle-upon-Tyne.

JUNE, 1913.

MATERIA MEDICA, PHARMACOLOGY AND PHARMACY,  
 PUBLIC HEALTH, MEDICAL JURISPRUDENCE,  
 PATHOLOGY AND ELEMENTARY BACTERIOLOGY.

- Elliot, Henry Hawes, Guy's Hospital.  
 Evans, Idris David, College of Medicine, Newcastle-upon-Tyne.  
 Gordon, Mary Sarah, College of Medicine, Newcastle-upon-Tyne.  
 Haigh, Ethne, College of Medicine, Newcastle-upon-Tyne.  
 Lau, Edward Ek Dun, College of Medicine, Newcastle-upon-Tyne.  
 Magee, Leo, College of Medicine, Newcastle-upon-Tyne.  
 Measham, John Eric, College of Medicine, Newcastle-upon-Tyne.  
 Proud, John Dover, College of Medicine, Newcastle-upon-Tyne.  
 Robson, Frank Blair, College of Medicine, Newcastle-upon-Tyne.  
 Savage, Philip, Guy's Hospital.  
 Smith, Andrew, College of Medicine, Newcastle-upon-Tyne.  
 Stott, William, College of Medicine, Newcastle-upon-Tyne.

PUBLIC HEALTH, MEDICAL JURISPRUDENCE,  
 PATHOLOGY AND ELEMENTARY BACTERIOLOGY.

- Leigh, Hubert Vere, M.R.C.S., L.R.C.P., College of Medicine, Newcastle-upon-Tyne.

## Bachelor of Medicine—Second Examination.

MARCH, 1913.

### *Honours—Second Class.*

Raine, Arthur Edwin, College of Medicine, Newcastle-upon-Tyne.

### *Pass List.*

Craig, Roy Neville, College of Medicine, Newcastle-upon-Tyne.  
Charles, John Alexander, College of Medicine, Newcastle-upon-Tyne.

Frere, Lionel Basil, College of Medicine, Newcastle-upon-Tyne.  
Graham-Hodgson, Harold Kingston, St. Thomas' Hospital, and  
College of Medicine, Newcastle-upon-Tyne.

Irving, George, College of Medicine, Newcastle-upon-Tyne.

Smirthwaite, Alfred, College of Medicine, Newcastle-upon-Tyne.

Sergeant, Bertram, College of Medicine, Newcastle-upon-Tyne.

Taylor, Alfred Cresswell, College of Medicine, Newcastle-upon-Tyne.

Welch, Robert, B.Sc., College of Medicine, Newcastle-upon-Tyne.

JUNE, 1913.

### *Honours—Second Class.*

Clark, George Albert, College of Medicine, Newcastle-upon-Tyne.

Gilmour, John, College of Medicine, Newcastle-upon-Tyne.

### *Pass List.*

Broadhurst, Harry Cecil, College of Medicine, Newcastle-upon-Tyne.

Brumwell, John, College of Medicine, Newcastle-upon-Tyne.

Braithwaite, Norman, College of Medicine, Newcastle-upon-Tyne.

Campbell, Mary Russell, College of Medicine, Newcastle-upon-Tyne.

Hunter, Reginald, College of Medicine, Newcastle-upon-Tyne.

Horsley, John, College of Medicine, Newcastle-upon-Tyne.

Johnson, James Dixon, College of Medicine, Newcastle-upon-Tyne.

Lake, Herbert Arnold, M.R.C.S., L.R.C.P., University College, London.

Landells, John Kerr Ritchie, College of Medicine, Newcastle-upon-Tyne.

- Martin, Norman Alexander, College of Medicine, Newcastle-upon-Tyne.  
 Metzger, George Nathaniel, B.A., College of Medicine, Newcastle-upon-Tyne.  
 Shaw, Thomas Wilson, College of Medicine, Newcastle-upon-Tyne.  
 Sinclair, William Oxley Forster, College of Medicine, Newcastle-upon-Tyne.  
 Sturridge, Frederick Reginald, Middlesex Hospital.

## Bachelor of Medicine—First Examination.

MARCH, 1913.

*The following passed in all subjects:—*

- Dingle, Hugh John, College of Medicine, Newcastle-upon-Tyne.  
 Lake, Herbert Arnold, M.R.C.S., L.R.C.P., University College, London.  
 Powell, William Irving Fitzgerald, College of Medicine, Newcastle-upon-Tyne.

*The following passed in Elementary Anatomy and Biology:—*

- Anderson, Percy Vernon, College of Medicine, Newcastle-upon-Tyne.  
 Bell, Edgar Frederick Herbert, College of Medicine, Newcastle-upon-Tyne.  
 Clark, James Struthers, College of Medicine, Newcastle-upon-Tyne.  
 Dunlop, Ernest Craig, College of Medicine, Newcastle-upon-Tyne.  
 Humphreys, Arthur Idwal, Edinburgh University.  
 Irwin, Charles Gordon, College of Medicine, Newcastle-upon-Tyne.  
 Kirsopp, Thomas, College of Medicine, Newcastle-upon-Tyne.  
 Leete, Harold Mason, College of Medicine, Newcastle-upon-Tyne.  
 Millar, Reginald Stanley, Guy's Hospital, and College of Medicine, Newcastle-upon-Tyne.

*The following passed in Chemistry and Physics:—*

- Daniel, Stephanie Patricia Laline Hunte, London School of Medicine for Women.  
 Helsham, Christopher Thomas, Guy's Hospital.

Henegan, Donald, College of Medicine, Newcastle-upon-Tyne.  
 Hearn, Douglas Ethelbert, College of Medicine, Newcastle-upon-Tyne.  
 Hickey, Patrick, College of Medicine, Newcastle-upon-Tyne.  
 Joynt, Malcolm Cyril, Guy's Hospital.  
 Newman, Carl Damien, College of Medicine, Newcastle-upon-Tyne.  
 Sterne-Howitt, Harold, Guy's Hospital.  
 Soliman, Iskander, School of Medicine, Cairo, and College of Medicine, Newcastle-upon-Tyne.

*The following passed in Elementary Anatomy:—*

Sturridge, Frederick Reginald, Middlesex Hospital.

JUNE, 1913.

*The following passed in all subjects:—*

*Honours—Second Class.*

Duncan, William, College of Medicine, Newcastle-upon-Tyne.  
 Erdberg, Mordecai Jacob, College of Medicine, Newcastle-upon-Tyne.

*Pass List.*

Bailey, Henry Hamilton, London Hospital.  
 Kerry, George Malayramon, Edinburgh School of Medicine.  
 Shehid, Sadek Abdel, College of Medicine, Newcastle-upon-Tyne.

*The following passed in Chemistry and Physics:—*

Anderson, Percy Vernon, College of Medicine, Newcastle-upon-Tyne.  
 Briggs, Norman, University of Leeds.  
 Berry, James Allan, Guy's Hospital.  
 Clark, James Struthers, College of Medicine, Newcastle-upon-Tyne.  
 Dunlop, Ernest Craig, College of Medicine, Newcastle-upon-Tyne.  
 Goulstine, Samuel Elijah, College of Medicine, Newcastle-upon-Tyne.  
 Irwin, Charles Gordon, College of Medicine, Newcastle-upon-Tyne.  
 Leete, Harold Mason, College of Medicine, Newcastle-upon-Tyne.



*The following passed in Elementary Anatomy and Biology :*

Alexander, John Neville, College of Medicine, Newcastle-upon-Tyne.

Joynt, Malcolm Cyril, Guy's Hospital.

Murphy, Peter, College of Medicine, Newcastle-upon-Tyne.

Newman, Freda, College of Medicine, Newcastle-upon-Tyne.

Sterne-Howitt, Harold, Guy's Hospital.

## Licence in Dental Surgery.

MARCH, 1913.

### FIRST EXAMINATION.

*The following passed in Chemistry and Physics :—*

Proud, William Joseph, College of Medicine, Newcastle-upon-Tyne.

### SECOND EXAMINATION.

*The following passed in Dental Mechanics, Dental Metallurgy,  
and Dental Materia Medica :—*

Wilkinson, Sidney, College of Medicine, Newcastle-upon-Tyne.

### THIRD EXAMINATION.

*The following passed in Anatomy, Physiology and Histology,  
Dental Anatomy and Dental Histology :—*

*Honours—Second Class.*

Smith, John Thomas, College of Medicine, Newcastle-upon-Tyne.

### *Pass List.*

Hurford, Wallace Edwin, College of Medicine, Newcastle-upon-Tyne.

JUNE, 1913.

## FIRST EXAMINATION.

*The following passed in Chemistry and Physics :—**Honours—Second Class.*

Sayce, Douglas Edward, College of Medicine, Newcastle-upon-Tyne.

Thompson, Wilfrid Taylor, College of Medicine, Newcastle-upon-Tyne.

Hall, William, College of Medicine, Newcastle-upon-Tyne

*Pass List.*

Mitcheson, William George, College of Medicine, Newcastle-upon-Tyne.

Olswang, Montague, College of Medicine, Newcastle-upon-Tyne.

Somerville-Woodiis, Lawrence, College of Medicine, Newcastle-upon-Tyne.

## SECOND EXAMINATION.

*The following passed in Dental Mechanics, Dental Metallurgy, and Dental Materia Medica :—**Honours—Second Class.*

Robertson, George Galloway, College of Medicine, Newcastle-upon-Tyne.

*Pass List.*

Bell, Hedley. College of Medicine, Newcastle-upon-Tyne.

Liddell, James Leslie, College of Medicine, Newcastle-upon-Tyne,

Maughan, Allan, College of Medicine, Newcastle-upon-Tyne.

Walker, Cyril Valentine, College of Medicine, Newcastle-upon-Tyne.

*The following passed in Dental Materia Medica :—*

Hopgood, Tom Merchant, College of Medicine, Newcastle-upon-Tyne.

## THIRD EXAMINATION.

*The following passed in Anatomy, Physiology and Histology, Dental Anatomy and Dental Histology :—**Honours—Second Class.*

Wilkinson, Sidney, College of Medicine, Newcastle-upon-Tyne.

—————

## II.—COLLEGE EXAMINATIONS.

FOR THE ACADEMIC YEAR, 1912-13.

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### Chemistry.

|                           |                                    |
|---------------------------|------------------------------------|
| First Class Honours ..... | M. J. Erdberg (Prize)              |
| Second    "       " ..... | { D. E. Sayce.<br>W. G. Mitcheson. |

### Practical Chemistry.

|                           |                                                                                                               |
|---------------------------|---------------------------------------------------------------------------------------------------------------|
| First Class Honours ..... | { M. J. Erdberg (Prize).<br>H. M. Leete.<br>W. G. Mitcheson.<br>E. A. Eaton.<br>E. C. Dunlop.<br>J. W. Vasey. |
| Second    "       " ..... | { M. Olswang.<br>W. Hall.                                                                                     |
| Third     "       " ..... | { D. E. Sayce.<br>H. R. Evans.<br>H. Thoma.                                                                   |

### Physics.

|                            |                                             |
|----------------------------|---------------------------------------------|
| Second Class Honours ..... | D. E. Sayce.                                |
| Third    "       " .....   | { L. Somerville-Woodiwis.<br>M. J. Erdberg. |

### Practical Physics.

|                           |                                                                                |
|---------------------------|--------------------------------------------------------------------------------|
| First Class Honours ..... | { W. T. Thompson (Prize).<br>W. G. Mitcheson.<br>D. E. Sayce.<br>E. C. Dunlop. |
| Second    "       " ..... | { W. Duncan.<br>H. Thoma.                                                      |
| Third     "       " ..... | { W. Hall.<br>L. Somerville-Woodiwis.                                          |

**Biology.**

Second Class Honours .....E. C. Dunlop.

**Anatomy (SENIOR).**

|                     |       |                       |
|---------------------|-------|-----------------------|
| First Class Honours | ..... | { J. Gilmour (Prize). |
|                     |       | { J. A. Charles.      |
| Second              | „ „   | { J. Brumwell.        |
|                     |       | { G. A. Clark.        |
| Third               | „ „   | { R. Welch.           |
|                     |       | { A. E. Raine.        |
|                     |       | { Mary R. Campbell.   |

**Anatomy (JUNIOR).**

First Class Honours .....M. J. Erdberg (Prize).

**Dissections (SENIOR).**

First Class Honours .....J. Brumwell (Prize).

**Dissections (JUNIOR).**

First Class Honours .....M. J. Erdberg (Prize).

**Applied Anatomy.**

|                     |       |                        |
|---------------------|-------|------------------------|
| First Class Honours | ..... | F. J. Natrass (Prize). |
| Third               | „ „   | W. K. Russell.         |

**Physiology.**

|                     |       |                        |
|---------------------|-------|------------------------|
| First Class Honours | ..... | J. A. Charles (Prize). |
| Third               | „ „   | G. A. Clark.           |

**Practical Physiology.**

|                     |       |                            |
|---------------------|-------|----------------------------|
| First Class Honours | ..... | W. O. F. Sinclair (Prize). |
| Second              | „ „   | G. A. Clark.               |

**Practical Histology.**

|                     |       |                      |
|---------------------|-------|----------------------|
| First Class Honours | ..... | G. A. Clark (Prize). |
| Second              | „ „   | W. J. Hooper.        |
| Third               | „ „   | { Mary R. Campbell.  |
|                     |       | { W. O. F. Sinclair. |

**Pathology and Elementary Bacteriology.**

Third Class Honours .....C. H. Keay.

### Medical Jurisprudence.

|                           |                       |
|---------------------------|-----------------------|
| First Class Honours ..... | { C. H. Cuff (Prize). |
|                           | { J. E. Measham.      |
| Second „ „ .....          | Ethne Haigh.          |
| Third „ „ .....           | J. A. Charles.        |

### Public Health.

|                           |                        |
|---------------------------|------------------------|
| First Class Honours ..... | E. J. Tyrrell (Prize). |
| Second „ „ .....          | C. H. Keay.            |
| Third „ „ .....           | W. Stott.              |

### Principles and Practice of Medicine.

|                            |                        |
|----------------------------|------------------------|
| Second Class Honours ..... | Evelyn Ritson.         |
| Third „ „ .....            | Carinna A. B. O'Neill. |

### Principles and Practice of Surgery.

|                           |             |
|---------------------------|-------------|
| Third Class Honours ..... | H. G. Dodd. |
|---------------------------|-------------|

### Midwifery and Diseases of Women and Children.

|                           |                            |
|---------------------------|----------------------------|
| First Class Honours ..... | W. E. R. Saunders (Prize). |
| Second „ „ .....          | E. R. A. Merewether.       |

### Psychological Medicine.

|                           |                          |
|---------------------------|--------------------------|
| First Class Honours ..... | Evelyn Ritson (Prize).   |
| Third „ „ .....           | { Carinna A. B. O'Neill. |
|                           | { W. K. Russell.         |

### Ophthalmology.

|                           |                            |
|---------------------------|----------------------------|
| First Class Honours ..... | W. E. R. Saunders (Prize). |
|---------------------------|----------------------------|

### Therapeutics.

|                           |                           |
|---------------------------|---------------------------|
| First Class Honours ..... | { F. Metcalfe } (Prizes). |
|                           | { F. J. Nattrass }        |
| Third „ „ .....           | W. E. R. Saunders         |

# EXAMINATION PAPERS FOR DEGREES, ETC.

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## FIRST EXAMINATION FOR THE DEGREE OF BACHELOR OF MEDICINE.

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MARCH, 1913.

### Elementary Anatomy.

- 1.—Describe the vomer and its articulations. Give an account of its development.
  - 2.—Describe the costovertebral articulations of a typical rib.
  - 3.—Describe the spine of the scapula, and name the muscles which are attached to it.
  - 4.—Describe the lower end of the humerus.
  - 5.—Describe the navicular bone of the foot.
  - 6.—Give the attachments and actions of the following muscles:
    1. Pectoralis major.
    2. Brachioradialis (supinator longus).
    3. Pectineus.
    4. Peronæus tertius.
- 

### Elementary Biology.

- 1.—Write a short essay upon the work which fungi perform in the economy of nature. Illustrate your answer by reference to the structure and life history of either *Mucor* or *Agaricus*.
- 2.—Give a brief explanation of the methods adopted by plants for the healing of wounds.
- 3.—Write a short account of either (a) the structure and mode of division of the nucleus, or (b) Mendel's law.
- 4.—Describe the origin and the fate of the somites in *Amphioxus*.
- 5.—What are the functions of the blood? State the composition of the blood of *Nephrops*, *Lumbricus*, *Rana* and *Lepus*.
- 6.—Write notes on the following: tricuspid valve, pancreas, yolk gland, proscœlex, cuticle, peritoneum, sinus, tentacle, spermatheca, spiracle.

## Chemistry.

- 1.—Five grammes of soda-ash are dissolved in 250 c.c. of water. What volume of a standard solution of hydrochloric acid, containing 36.5 grammes of HCl. per litre, would be required to neutralise 50 c.c. of the soda-ash solution, supposing (a) the soda-ash to be pure sodium carbonate, (b) the soda-ash to contain 80 per cent. of sodium carbonate.

Na.=23.    C=12.    O=16.    Cl.=35.5.

- 2.—Explain in words and by equations the reactions employed in the production of the following compounds: (a) nitrogen peroxide, (b) sulphur trioxide, (c) hydrogen peroxide, (d) potassium chlorate.
- 3.—What is the formula of carbon monoxide, and how would you prove it experimentally?
- 4.—How would you distinguish between "corrosive sublimate" and "calomel?" Give their formulæ.
- 5.—How would you distinguish experimentally between "saturated" and "unsaturated" hydrocarbons, and between an aliphatic and an aromatic hydrocarbon?
- 6.—Give two examples and formulæ of each class of the following compounds, "ester," "alcohol," "amine," and "ether."
- 7.—What are the characters of compound containing the following radicals: "COOH," "OH," "CHO."
- 8.—How would you distinguish between aqueous solutions of cane sugar and of grape sugar? How would you prepare one of these sugars from the other?

(Six questions only to be attempted.)

## Physics.

- 1.—How would you determine the change in the volume of a gas at constant temperature due to a change in pressure?  
If a volume of a gas at 20° C. is reduced 10 per cent. by an increase of pressure, what rise in temperature will restore the gas to its original volume?
- 2.—Trace the change in volume of 1 kilogram of ice at 0° C., when it is melted and the temperature is raised from 0° to 20° C. What quantity of heat is required in the process? Indicate the method of experiment on which your answer is based.
- 3.—A substance of mass 150 grams at 10° C. is introduced into a calorimeter (water equivalent 10 grams) containing 140 grams of water at 20° C. The final temperature is 19° C. Calculate the specific heat of the substance, and give drawings with explanation of the method of carrying out the experiment.



- 4.—Explain how to mark off, on a sheet of paper fixed to a table, the direction of the magnetic meridian. What is meant by the "declination?"
- 5.—Describe the construction, and explain the use, of a tangent galvanometer.  
If a certain current produce a deflection of  $20^{\circ}$ , show by means of a diagram, the angle of deflection when the current strength is three times as great.
- 6.—What is the effect of interposing (1) a prism of small angle, (2) a thin converging lens, in the course of a parallel beam of light? Give a drawing in each case.

JUNE, 1913.

### Elementary Anatomy.

- 1.—Name the muscles which are attached to the body of the pubis, and define the precise attachment of each to that bone.
- 2.—Describe the sacrum.
- 3.—Describe the mandible.
- 4.—Describe the ligaments of the knee joint.
- 5.—Describe the talus.
- 6.—Describe the attachments and give the principal actions of the following muscles:—
  - (1) Supinator.
  - (2) Serratus anterior.
  - (3) Psoas major.
  - (4) Tibialis posterior.

### Elementary Biology.

- 1.—Explain clearly why the presence of atmospheric air is indispensable for the growth of green plants. Describe an experiment to demonstrate the truth of this fact.
- 2.—Write short notes explaining the meaning of the following terms:—*Stimulus*, *Intercellular-space*, *Fungus*, *Nucleus*, *Diastase*, *Cambium*.
- 3.—Give an account of either (a) the structure and life history of *Spirogyra* and compare its mode of reproduction with that of *Fucus*, or (b) the process of fertilization in a flowering-plant.

- 4.—What do you understand by Protozoa and Metazoa? Give an account of cell physiology.
- 5.—Define an excretory organ, and give the structure and relationships of the excretory organs of the earth-worm and of *Amphioxus*.
- 6.—Describe the blood circulatory system of the lobster. What is a blood pigment?

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### Chemistry.

- 1.—An element forms an oxide containing 1 part by weight of oxygen combined with 1.125 parts by weight of the element. In the gaseous state this oxide has a density of 2.35 in relation to air. What is the weight of the element contained in the molecular weight of this oxide?
- 2.—The gas obtained by the action of sulphuric acid on iron sulphide is passed into aqueous solutions of the following salts:—(a) copper sulphate, (b) ferrous sulphate, (c) ferric chloride. Describe the changes you would observe, and explain the actions by equations.
- 3.—How is chlorine made? What is the effect produced by passing this gas into (a) a solution of caustic potash, (b) a solution of potassium iodide, (c) a solution of sulphur dioxide?
- 4.—You are given solutions of each of the following acids, viz., hydrochloric, sulphuric, and nitric acids. How would you distinguish between them, and how prepare a salt of one of these acids?
- 5.—Write a short account of starch, describing its properties, composition, and sources. What experiments you would make to illustrate the changes which starch undergoes when boiled with dilute acids? How do you explain these changes?
- 6.—Fats are described as “ethereal salts” or “esters.” Explain the meaning of this expression, and give an account of the experiments you would make to support this view.
- 7.—Give an account of a method you would use to determine the molecular weight of an organic substance, which is found to dissolve in benzene.
- 8.—Describe how you would prepare a specimen of urea (a) synthetically, (b) from urine? How you would distinguish between an aqueous solution of urea and one of ammonium carbonate?

(Six questions only to be attempted.)

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## Physics.

- 1.—Describe one method of determining the specific gravity of a solid.

Two solids, A and B, have the same volume. The specific gravity of A is 2·5, and of B ·9. A and B together weigh 17 grams in air, what will they weigh when attached together and wholly immersed in water?

- 2.—The volume of a gas is kept constant, how does change of temperature affect the pressure of the gas? Describe an experiment in illustration. If in the above case the temperature is changed from  $20^{\circ}\text{C.}$  to  $30^{\circ}\text{C.}$ , calculate the percentage increase of pressure.

- 3.—State the precautions necessary in making a determination of the latent heat of water, and describe the experiment and method of calculation.

The latent heat of water being 80 units, what is the result of adding 3 pounds of ice at  $0^{\circ}\text{C.}$  to 7 pounds of water at  $60^{\circ}\text{C.}$ ?

- 4.—Given two bar magnets, explain how to magnetise a thin bar of steel so that one end, which is marked, is north-seeking. Describe, with diagram, how to compare the pole strengths of two magnets of equal dimensions by the method of deflection.

- 5.—Upon what does the strength of the electric current in a circuit, which includes a battery, depend? Describe an instrument in which the magnetic effect of an electric current is utilised for comparing the strengths of electric currents.

- 6.—Explain what is meant by the statement that the index of refraction of glass is 1·5.

A parallel beam of light falls normally upon one of the faces, containing the right angle, of an isosceles right angled prism. Trace the course of the light through the prism.

## SECOND EXAMINATION FOR THE DEGREE OF BACHELOR OF MEDICINE.

MARCH, 1913.

### Anatomy.

- 1.—Give an account of the attachments, disposition, and relations of the omo-hyoideus muscle
- 2.—Describe the form, position, and relations of that part of the œsophagus which extends between the level of the first thoracic vertebra and the stomach.
- 3.—Give an account of the arteries found on the dorsal aspect of the wrist, hand, and fingers.
- 4.—What structures must be cut through in order to remove the right cerebral hemisphere from the rest of the brain? Describe the appearance of the medial aspect of the part of the brain thus removed.
- 5.—Describe the convex surface of the liver, and give the relations of this surface to the peritoneum, abdominal walls, and thoracic viscera.
- 6.—Describe the two terminal trunks into which the great sciatic nerve divides, so far as they are contained in the popliteal space. The names and positions of the branches of these two nerves must be mentioned, but a detailed description of these branches need not be given.

(Four questions only to be answered, of which two are to be taken from the first half of the paper, and two from the second half.)

### Physiology.

- 1.—What are the composition and mode of action of bile? Give an account of (1) the factors which are concerned in the secretion of bile, and (2) the fate of its more important constituents.
- 2.—Explain the terms “respiratory quotient” and “respiratory exchange.” How are they influenced by food, by exercise, and by the size of the individual?
- 3.—Write a short essay on reflex action.

- 4.—Give some account of the preparation (from urine) and the properties of uric acid. What is known of its mode of origin in the body?
- 5.—Describe with diagrams the manner in which the lens is attached to the eyeball. What changes occur in the lens during accommodation for near objects, and how are they brought about?
- 6.—What would be the effect of exciting the peripheral end of a cut splanchnic nerve on—
  - (a) The arterial blood pressure;
  - (b) The blood-flow through the intestines;
  - (c) The blood-flow through the fore-limbs;
  - (d) The work of the heart?

Give reasons for your statements.

(Four questions only are to be answered, of which two are to be taken from the first half of the paper, and two from the second half.)

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JUNE, 1913.

### Anatomy.

- 1.—Describe the superficial origin, course, and distribution of the accessory nerve.
- 2.—Describe the relations of the duodenum.
- 3.—Describe the arterial supply of the foot.
- 4.—Give a description of scalenus anterior muscle. Enumerate and state the relative positions of all the structures which are in contact with this muscle.
- 5.—State the form, position, and relations of the male bladder when in the empty condition, and the changes which occur as the viscus becomes filled with urine.
- 6.—Describe the position, relations, branches, and communications of the deep arterial arch of the palm.

(Four questions only to be answered, of which two are to be taken from the first half of the paper, and two from the second half.)

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## Physiology.

- 1.—How would you determine the output and work of the heart?  
How and why is the work of the heart affected by (a) a rise of arterial blood-pressure, and (b) hydræmic plethora?
- 2.—What is the composition of inspired and expired (alveolar) air? How would you determine the composition of alveolar air? How (if at all) is the composition of alveolar air influenced by (1) muscular exercise, and (2) the presence of 2%  $\text{CO}_2$  in the inspired air?
- 3.—Describe the various means by which the quantity of blood flowing through the kidneys in a given time may be (1) increased, and (2) decreased. What is the relation between the amount of the blood flowing through the kidneys and the amount of urine formed?
- 4.—What are the necessary ingredients of a diet for a normal man, and how much of each would he require in a day? Within what limits would it be possible to vary the relative quantities of these ingredients without injury to health? How should the diet be altered in conditions of (a) severe muscular exercise, (b) complete rest in bed?
- 5.—A man suffers from a lesion (*e.g.*, a hæmorrhage) which divides the whole of the internal capsule of the left side. What effects, immediate and remote, will ensue?
- 6.—Describe the anatomical arrangement of the semicircular canals. What are their functions?

(Four questions only to be answered, of which two are to be taken from the first half of the paper, and two from the second half.)

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## THIRD EXAMINATION FOR THE DEGREE OF BACHELOR OF MEDICINE.

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MARCH, 1913.

### Pathology and Elementary Bacteriology.

- 1.—What do you understand by the terms Anaërobe, Antigen, Merozoïte, Opsonin, Sporozoïte, and Spore as applied in micro-biology?
  - 2.—Discuss in general the preparation, nature, and properties of antiscrums, and in particular the serum treatment of meningococcal meningitis.
  - 3.—Describe the mode of formation and the microscopical appearances of simple granulation tissue.
  - 4.—Under what conditions does pulmonary collapse occur? Describe the naked-eye and microscopical appearances, and state the results.
  - 5.—What are the chronic pathological changes which occur in the cardiac muscle? Describe their naked-eye and microscopic characters, and state how they affect the structure and function of the heart.
  - 6.—Give a detailed account of the effects produced in the body by the diphtheria bacillus. Describe how they may endanger life, and contrast the action of this organism with that of the streptococcus pyogenes.
- 

### Medical Jurisprudence.

- 1.—You are asked to say how long a person has been dead. What points do you look for in your examination of the body, and what are the main data on which you would base a decision?
  - 2.—Under what circumstances are you justified in stating that a certain stain upon clothing is caused by human blood?
  - 3.—Describe the post-mortem appearances in a case of death from overlaying.
  - 4.—Give the symptoms and treatment of phosphorus poisoning.
  - 5.—What are the symptoms and post-mortem findings in a case of poisoning by water-gas?
  - 6.—What treatment would you follow in a case of opium poisoning?
-



## Public Health.

- 1.—Give a definition of “common lodging house” and “cellar dwelling.” What are the sanitary requirements as to the establishment of common lodging houses and the occupation of cellar dwellings?
- 2.—State what you know as to the diseases arising from industrial occupations. What are the causes of industrial lead poisoning, and what precautions are necessary to prevent it?
- 3.—Mention the principal sources of drinking water supplies, and state the advantages and disadvantages of each supply. What are the disadvantages of an intermittent water supply, and what sanitary precautions should be observed in providing the necessary storage cisterns for such a supply?
- 4.—What is the incubation period of smallpox, chicken pox, and cow pox? Mention the points which would influence you in deciding whether a patient was suffering from smallpox or chicken pox. How would you deal with an outbreak of smallpox in a crowded lodging house?
- 5.—Mention some of the common defects of dwellings which render them unhealthy. In the construction of a dwelling house, what precautions must be taken to prevent dampness? Indicate, preferably by a sketch, how you would prevent dampness of the wall of a room which is partly below the ground level.

(Four questions only are to be answered.)

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## Materia Medica with Pharmacy.

- 1.—Give the preparations and dosage of three vegetable purgatives. Describe the action of the vegetable purgatives, and contrast their mode of action with that of the saline purgatives.
- 2.—Describe the action of opium. Name and give the dosage of the official powders containing opium.
- 3.—What is the action of alcohol on the various tissues of the body?
- 4.—Give the preparations of squills with their dosage. Describe the action of squills on the heart and the respiratory system.
- 5.—Describe the mode of action of a hypnotic, and name three hypnotics, with their dosage.

6.—Give the official name, composition and dosage, of :—

- (a) Paregoric.
- (b) Donovan's solution.
- (c) Black draught.
- (d) Gregory's powder.

(Four questions only to be answered.)

— —

JULY, 1913.

### Pathology and Elementary Bacteriology.

- 1.—Describe in detail the methods available for the diagnosis of an obscure case of enteric fever.
- 2.—What is meant by the terms "natural" and "acquired" immunity? How may immunity to an infective disease be acquired?
- 3.—Discuss the pathology of broncho-pneumonia (non-tuberculous) under the headings of—
  - (a) Causation;
  - (b) Naked eye and microscopical appearances;
  - (c) Results.
- 4.—Give an account of the causes of atrophy, with illustrative examples. What histological changes would you expect to find in an atrophied part?
- 5.—Give an account of the conditions which may cause cerebral hæmorrhage. State its commonest sites, and detail the structural and functional changes produced.
- 6.—Discuss the pathology of ulcerative endocarditis. What are the commonest organisms which are associated with it? Describe the changes found in the heart and in other organs.

— — — —

### Medical Jurisprudence.

- 1.—Contrast the post-mortem appearances in hanging and throttling.
- 2.—Describe the method you would adopt to examine for blood when the amount of material to work with is very small.
- 3.—What proofs do you rely upon to demonstrate live birth?
- 4.—What is a poison? How in general do poisons act?
- 5.—Describe the symptoms of chronic mercurial poisoning.
- 6.—How would you treat a case of strychnine poisoning, and how detect the poison?

— — — —

## Public Health.

- 1.—Mention the infectious diseases most prevalent among children of school age, and state the incubation period of each of them. If a case of scarlet fever occurred in the class room of an elementary school, how would you disinfect the room and its contents?
- 2.—What are the causes of the pollution of the air of dwelling houses, and what may be the effect of such pollutions on the health of the occupants. Calculate the cubic space of a circular room, 20 feet in diameter and 10 feet high, and state in cubic feet how much fresh air should be supplied to the room each hour to keep the air reasonably pure when occupied by four adults.
- 3.—Compare the chemical and microscopical contents of a good drinking water obtained from (a) moorland gathering grounds, and (b) deep wells. What are the objections to a hard water on public health and economical grounds? Describe the Porter Clark process of water softening.
- 4.—What is a cellar dwelling, and under what circumstances may such a dwelling be occupied? What are the sanitary objections to such dwellings?
- 5.—Give your views as to the theory of the conveyance of the virus of smallpox by the air. What considerations would influence you in selecting a site for a smallpox hospital?

(Four questions only are to be answered.)

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## Materia Medica and Pharmacology.

- 1.—Describe the action of chloroform as a general anæsthetic.
- 2.—Describe the action of digitalis on the heart.
- 3.—What are the pharmacopœial preparations of cocaine? Describe the mode of action of cocaine.
- 4.—What is the source of strychnine? Describe in detail the effects of strychnine on the central nervous system.
- 5.—Name the official powders which contain opium. Give their strength and dosage.
- 6.—What is the action of iron in the body? Name the scale preparations of iron.

(Four questions only are to be answered.)

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## FINAL EXAMINATION FOR THE DEGREE OF BACHELOR OF MEDICINE.

---

MARCH, 1913.

### Principles and Practice of Medicine and Psychological Medicine.

- 1.—Enumerate the diseases of which hæmatemesis is a common symptom. What points serve to distinguish it from hæmoptysis?
- 2.—Explain the production of dilatation of the heart and its consequences. Give the treatment of the condition.
- 3.—Give a definition of lupus. Mention the forms that may occur, and describe their appearances and treatment.
- 4.—Write an account of the symptoms and clinical course of measles. What complications are likely to arise?
- 5.—Describe the varieties and causes of ascites, and discuss the prognosis and treatment in each case.
- 6.—Describe the various forms of mental disease due to acute and chronic alcoholism.
- 7.—What is delusional insanity? Describe any case you may have seen, and give the prognosis and treatment.

(Questions 1, 2, 3, 4, and 5 and *one* of the two questions numbered 6 and 7 to be answered.)

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### Principles and Practice of Surgery.

- 1.—*Appendicitis*. Describe the course of an acute case from its commencement up to the third day. Discuss the pathology.
- 2.—*Rupture of the internal semilunar cartilage of the knee*. Describe a typical case, and discuss the differential diagnosis.
- 3.—*Syphilis*. How long after the appearance of the primary syphilitic sore are secondary manifestations likely to make their appearance? Describe the skin and other lesions peculiar to this period.
- 4.—Mention the conditions which may attend or follow upon a penetrating wound of the pleura. Describe the symptoms and treatment of such condition.

- 5.—Describe the condition of hammer toe. Give the causes, complications, and treatment.
  - 6.—Describe the origin and course of the middle meningeal artery, and state in what part of its course it is of special interest to the surgeon, and why?
- 

### Midwifery and Diseases of Women and Children

- 1.—What are the causes of secondary post-partum hæmorrhage occurring about a week after confinement? Describe the treatment of such a case.
  - 2.—Define prolapse and procidentia of the uterus. What conditions may be mistaken for prolapse? Describe briefly the treatment of procidentia.
  - 3.—What are the varieties of icterus neonatorum? and give the treatment of each variety.
  - 4.—Mention the abnormal conditions which may be met with in the third stage of labour, and state how you would deal with them.
  - 5.—Discuss fully the diagnosis and treatment of eclampsia.
  - 6.—Describe the course of the lymphatics connected with the female genitalia, and illustrate their clinical importance.
- 

JUNE, 1913.

### Principles and Practice of Medicine and Psychological Medicine.

- 1.—Mention the conditions that produce pyloric stenosis, and describe the symptoms and treatment of the condition.
- 2.—Describe impetigo contagiosa, including its clinical history, pathology, and treatment.
- 3.—Discuss the etiology of disseminated sclerosis of the brain, and give the symptoms, diagnosis, and treatment of the affection.
- 4.—Mention the various conditions that may give rise to deficient entry of air into the left lung. How would you recognise the cause?
- 5.—Discuss the diagnostic significance of enlargement of the spleen.
- 6.—What mental and bodily symptoms would lead you to fear that a patient was in the early stage of general paralysis? Give a description of the typical progress of such a case, and mention the chief dangers and difficulties met with.

- 7.—What mental derangements are frequently associated with acute and chronic alcoholic excesses? Describe a case of acute mania due to the former cause. Give the treatment and prognosis.

(Questions 1, 2, 3, 4, and 5, and one of the two questions numbered 6 and 7 *must* be answered.)

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### Principles and Practice of Surgery.

- 1.—*Wound healing.* Describe the processes of repair in a wound healing by first intention. What are the greatest obstacles to such union?
- 2.—*Acute arthritis.* Discuss the differential diagnosis of arthritis due to (a) acute rheumatism, (b) gonorrhœal rheumatism, and (c) pyæmia.
- 3.—*Hæmophilia.* Describe the case of a typical bleeder. Mention the accidents that may occur during his life, and the mistakes which may be made if his tendency is unknown.
- 4.—*Retention of urine.* Give its various causes and their treatment.
- 5.—Describe the treatment of a recent transverse incised wound dividing the soft parts down to the bone on the anterior aspect of the forearm an inch above the wrist joint. What are the possible immediate and remote consequences of such an injury?
- 6.—Describe the nasal fossæ. What cavities open into them, and where? Mention the varying characters of the lining membrane, and explain the reasons for such differences.

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### Midwifery and Diseases of Women and Children.

- 1.—Discuss the pathology, symptoms and treatment of the condition known as “fibrosis uteri.”
  - 2.—How would you diagnose and manage a case of occipito-posterior presentation during labour?
  - 3.—What conditions account for imperfect suckling; and how should they be dealt with?
  - 4.—Describe the structure and function of the corporeal endometrium during menstruation and pregnancy.
  - 5.—What are the causes of subinvolution of the uterus, and how should the different cases be treated?
  - 6.—Give an account of the histological structure of the various retention cysts and cystic new-growths of the ovary.
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## EXAMINATION FOR THE DEGREE OF MASTER OF SURGERY.

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MARCH, 1913.

### Principles and Practice of Surgery.

- 1.—*Portal pyæmia*. Describe the clinical course and post-mortem findings in a case of infection of the portal vein consequent on an attack of appendicitis.
- 2.—*Popliteal aneurysm*. Discuss the differential diagnosis and treatment of a case of popliteal aneurysm.
- 3.—*Perforating ulcer of the foot*. Discuss the etiology, diagnosis, prognosis, and treatment.
- 4.—Give in detail the various theories as to the causes, the symptoms observed, and the method of treatment recommended in metatarsalgia.
- 5.—Give fully your views as to metastasis in carcinomatous and sarcomatous tumours.
- 6.—Describe a case of fibrous polypus of the base of the skull, and give a short account of the different operations practised for its removal.

(Four questions only to be answered, of which, two are to be taken from the first half of the paper, and two from the second half.)

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### Surgical Pathology and Surgical Anatomy.

- 1.—*Arthritis*. Discuss and compare the pathological changes in arthritis due to (a) tuberculosis, (b) osteoarthritis, (c) rheumatoid, (d) Charcot's disease—affecting the knee joint.
- 2.—*Ileocæcal tuberculosis*. Discuss the pathology and the lymphatic vascular arrangements in connection with the operative treatment of ileocæcal tuberculosis.
- 3.—*Breast cancer*. Describe the distribution of the lymphatics in connection with the breast, and discuss their relation to the spread of cancer of it.
- 4.—Give the pathology of the congenital cystic tumours of the neck, and explain, anatomically, the difficulties which may be met with in the excision of one situated laterally along the course of the sterno-mastoid.



- 5.—Describe the effects produced by chronic obstruction of the common bile duct; on the gall bladder, liver, and tissues of the body. Describe an operation for the removal of a calculus impacted in this duct, giving anatomical details.
- 6.—Mention the various pathological conditions which may affect the seminal vesicles, and describe an operation for the exposure of these organs, giving anatomical details.

(Four questions only to be answered, of which two are to be taken from the first half of the paper, and two from the second half.)

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## EXAMINATION FOR THE DEGREE OF DOCTOR OF MEDICINE FOR PRAC- TITIONERS OF FIFTEEN YEARS STANDING.

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MARCH, 1913.

### Medicine and Allied Sciences.

- 1.—Discuss valvular lesions of the heart, with special reference to their diagnosis, prognosis, and treatment.
- 2.—Give a description of arthritis deformans, including its differential diagnosis, prognosis, and treatment.
- 3.—Define idiocy, and give a classification of the condition, based on its etiology, which will most assist in the prognosis and treatment of the state.
- 4.—Describe the position of the liver with reference to the parietes, and give the situation of the gall bladder.
- 5.—What is known of the aetiology of acute poliomyelitis? Describe the clinical symptoms, and discuss the prognosis.

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### Surgery and Public Health.

- 1.—*Congenital syphilis*. Describe the conditions found in (a) the syphilitic infant, (b) the syphilitic adolescent.
- 2.—Mention the chief points of differential diagnosis between an epithelioma, and a typical hard chancre, of the lip. State shortly the treatment you would recommend in such case.

- 3.—What would be the result of section of the ulnar nerve at the elbow? Explain this anatomically.
- 4.—Enumerate the diseases communicable from animals to man. Give the incubation periods, and state the manner in which each disease is communicated.
- 5.—Describe the various methods adopted by sanitary authorities for the collection and final disposal of house refuse, and state the advantages and disadvantages of each from a public health standpoint. In selecting a site for a refuse destructor, what points ought to receive consideration?

(Questions 1, 2, and 3 must be answered, and one of the questions numbered 4 and 5.)

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### Midwifery and Diseases of Women and Children.

- 1.—A primigravida has commenced labour at term. The presenting head is still above the pelvic brim. To what may this be due? Describe briefly the treatment of any three cases due to different causes.
  - 2.—How would you diagnose a case of pelvic cellulitis following labour at term? What treatment would you adopt?
  - 3.—What are the indications for craniotomy, and how should the operation be performed in any given case?
  - 4.—What are the causes of retroflexion and retroversion of the uterus, and what treatment would you adopt in each class of case?
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### Medical Jurisprudence and Pathology.

- 1.—You are called upon to examine a person alleged by the police to be drunk. State your procedure, and discuss the signs which would enable you to state that the person was intoxicated.
  - 2.—Describe a case of poisoning by tartar emetic.
  - 3.—Give an account of the pathology and results of prostatic enlargement.
  - 4.—Discuss the pathology of pulmonary emphysema, and describe the changes which may result in other organs.
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JUNE, 1913.

**Medicine and Allied Sciences.**

- 1.—Discuss embolism and thrombosis as causes of cerebral softening, making reference to the anatomical changes, symptoms, and treatment of the conditions.
  - 2.—Mention the chief causes of obstructive jaundice, giving the differential diagnosis and treatment of the states mentioned.
  - 3.—Give the etiology of general paralysis of the insane, also a description of the symptoms, diagnosis, and treatment of the disease.
  - 4.—Give a description of the anatomical relations of the vermiform appendix, also its structure.
  - 5.—Discuss the causes, consequences, and treatment of high arterial tension.
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**Surgery and Public Health.**

- 1.—*Punctured wound of knee joint.* Describe the treatment you would adopt for a patient who has just had a large rusty nail stuck in his knee joint?
- 2.—Give the pathology and symptoms of a case of malignant disease of the oesophagus. What are its usual sites? Give a short account of the management of such a case.
- 3.—Describe, shortly, the arrangements of the synovial sheaths of the flexor tendons at the wrist and in the hand. Mention their importance surgically.
- 4.—Mention the diseases which may be spread by the consumption of impure water. Describe the Pasteur Chamberland filter and state what precautions are necessary to ensure its continued efficiency.
- 5.—Discuss the etiology of enteric fever in districts where the drinking water supply is above suspicion. What precautions to prevent the spread of the disease would you recommend in the case of an enteric fever patient nursed at home in a four-roomed dwelling situated in an industrial district.

(Questions 1, 2, 3 and one of the two questions numbered 4 and 5 are to be answered.)

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## Midwifery and Diseases of Women and Children.

- 1.—Describe the symptoms, physical signs, and differential diagnosis of carcinoma cervicis.
  - 2.—How would you manage a case of labour complicated by a dermoid cyst of the ovary in the pouch of Douglas?
  - 3.—Under what circumstances do women suffer from frequency of micturition? What treatment would you adopt in each case?
  - 4.—What injuries may be inflicted upon the child during delivery; and what measures would you take to avoid such accidents?
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## Medical Jurisprudence and Pathology.

- 1.—How is putrefaction influenced according as the body is exposed in air or in water.
  - 2.—Describe the symptoms and post-mortem appearances of carbolic acid poisoning.
  - 3.—How may tuberculosis affect the intestines and peritoneum?
  - 4.—Give an account of the chronic degenerative changes which may occur in the myocardium.
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## EXAMINATION FOR THE DEGREE OF BACHELOR OF HYGIENE, AND FOR THE DIPLOMA IN PUBLIC HEALTH

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MARCH, 1913.

## Bacteriology and Comparative Pathology.

- 1.—Give a general account of the life history of a sporozoon parasite.
- 2.—Write a short summary of your knowledge of the parasitic hypothesis of malignant new growths.
- 3.—Discuss the morphology and cultural characteristics of the parasites causing actinomycosis in man.
- 4.—Discuss the evidence for and against the conclusion that tuberculous disease of bovines is a source of human tuberculosis.

How would you differentiate the human and bovine varieties of bacillus tuberculosis?

- 5.—Describe in detail how you would proceed to the diagnosis of syphilis by means of the Wassermann reaction. Discuss the principles involved in this test.
- 6.—Explain in detail what steps you would take to make a complete bacteriological diagnosis of diphtheria. Discuss the value of the diagnosis of diphtheria by the microscopical examination of the growth on solid media inoculated from the throat of a patient.

(Four questions only to be answered.)

### Sanitary Chemistry and Physics.

- 1.—What is your opinion as to the suitability for drinking purposes of the waters A and B, samples of which gave the following results on examination:—

|                       | A                        | B                      |
|-----------------------|--------------------------|------------------------|
| Total solids          | 5.6                      | 22.7 grams per gallon  |
| Chlorine as Chlorides | 1.8                      | 1.5                    |
| Ammonia (free)        | 0.05                     | 0.02 parts per million |
| Albuminoid Ammonia    | 0.08                     | 0.25                   |
| Colour                | { clear,<br>deep yellow. | { cloudy,<br>yellow.   |
| Poisonous Metals      | nil.                     | nil.                   |

- 2.—Describe and explain fully a method for the softening of a hard water.
- 3.—How would you determine the proportion of carbon dioxide in the air of a room? To what extent would results obtained justify conclusions as to the efficiency of the ventilation of the room?
- 4.—Describe a standard barometer.  
The height of the mercury barometer at a temperature of  $20^{\circ}\text{C}$ ., as read by a brass scale, correct at  $0^{\circ}\text{C}$ ., is 756 mms., what is the true height of the mercury at  $0^{\circ}\text{C}$ .? The coefficient of expansion of mercury is .00018, and the coefficient of linear expansion of brass is .000019.
- 5.—A difference of pressure represented by one half of an inch of water produces a flow of air through a ventilation system. What difference of pressure would be required to increase the flow of air by 50 per cent.? Discuss the experimental basis of your calculation.
- 6.—Describe the wet and dry bulb hygrometer, and explain how it is used, and how the dew point is deduced. Given the dew point, the temperature, and the pressure of the atmosphere, how would you determine the mass of aqueous vapour per litre of air, and the relative humidity?

## Sanitary Legislation, Nosology, and Sanitary Medicine.

- 1.—Give facts in support of the doctrine of the propagation of infective disease by means of human carriers.
- 2.—Give a description of anti-tuberculosis dispensaries, making reference to the object of their establishment, the method of their conduction, and the value of such institutions in checking the spread of infection.
- 3.—Describe, with sketch, a privy ashpit which would comply with the model building byelaws of the Local Government Board. What are the powers of sanitary authorities under the Public Health Act, 1875, and the Public Health Acts' Amendment Act, 1907, for dealing with conservancy methods of excrement disposal?
- 4.—Give your views as to what constitutes overcrowding (*a*) on site, (*b*) in dwellings. Mention the powers possessed by County Councils under the Housing Acts in respect of unhealthy houses, and the provision of dwellings for the working classes.
- 5.—What are the symptoms of swine fever, and what lesions would you expect to find in the carcase of a pig which had suffered from that disease? Mention the requirements as to site and structure which should be enforced by sanitary authorities in respect of private slaughter houses for which a licence is required.
- 6.—What accommodation for patients should be provided in an isolation hospital for a district with a population of 50,000? Prepare a rough ground plan of the site of such hospital, showing the position of the administrative buildings and ward blocks. What hospital provision for smallpox cases is desirable for such a district?

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## Practical Hygiene, Climatology, etc., and Vital Statistics.

- 1.—Give the geographical distribution of ankylostomiasis, also a description of the parasites, and the measures to be taken to prevent their spread.
- 2.—Discuss the etiology and pathology of epidemic poliomyelitis, with reference to the infective nature of the disease and the possible relations of certain forms of illness in domestic animals to poliomyelitis.



- 3.—In comparing the total death rate of industrial, residential, and country sanitary districts, what corrections may have to be made? Compare the average infant mortality rate in urban and rural districts in England and Wales, and set forth in tabular form the chief causes of deaths among infants under one year of age.
- 4.—Discuss the effect of temperature and rainfall on the public health. Describe a rain gauge, and state how rain or snow collected in the gauge is measured. What points should be observed in selecting a site for a rain gauge?
- 5.—Describe the most effective method of purifying, on a large scale, drinking water supply obtained from a river to which sewage may gain access. Express your opinion as to the efficacy of the various schemes which have been suggested for the prevention of water borne diseases by the addition of chemicals to drinking water.
- 6.—Set forth in tabular form, in parts per 100,000, the average organic and inorganic contents, as determined by the usual chemical analysis, of a reasonably pure drinking water derived (a) from upland gathering grounds, and (b) from a deep well. Compare also the physical and microscopical characters of such waters.

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JUNE, 1913.

### Bacteriology and Comparative Pathology.

- 1.—State how you would make a bacteriological examination of a case of suspected ringworm. Describe the parasites responsible for the diseases commonly grouped as "Ringworm," including the methods of their isolation and recognition. Mention any which are common to domesticated animals.
- 2.—Mention the diseases of man and animals, the viruses of which are known to be transmitted by the agency of insects. Arrange them in groups according to the nature of the infecting agent, and state the insect responsible in each case. Give in detail the proofs of such transmission in three cases.
- 3.—Suppose you were called upon to advise as to the suitability of a water supply for drinking purposes, how would you proceed to the bacteriological examination of such water? To which results of your examination would you attach particular importance. and why?



- 4.—Describe briefly the various immunity reactions employed in diagnosis of disease and in the identification of bacteria. Discuss briefly the principles on which the methods depend.
- 5.—Mention the diseases of man and animals which are due to filterable viruses. How would you satisfy yourself that a disease was due to a virus of this character? Illustrate your answer by some instance with which you are acquainted.
- 6.—Describe in detail the means you would employ for the isolation, cultivation, and identification of the tetanus bacillus from pus.

(Four questions only to be answered.)

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### Sanitary Chemistry and Physics.

- 1.—Describe how you would make and standardise a solution of potassium permanganate suitable for the determination of the oxidisable organic matter in a potable water.
  - 2.—The air of a room is said to be contaminated by a leakage from a gas service pipe. What chemical method would you employ to verify this statement?
  - 3.—What natural waters most readily act upon lead? What experiments would you make with a water to ascertain whether it had any solvent action upon lead?
  - 4.—Describe a recording aneroid barometer, and explain how to compare the rate of change of pressure on two occasions from the chart of such a barometer.
  - 5.—How can the velocity of an air current in an air duct of uniform, but large, section be determined? Explain how to calculate therefrom the rate of flow of air through the duct.
  - 6.—Above the mercury in a barometer, A, is introduced a small quantity of water, and above the mercury in a barometer, B, placed in the same cistern of mercury as A, is introduced a small quantity of ether. In both cases a little liquid is seen above the mercury. In which case is the mercury-level higher, and why? Explain generally how the mercury level in each changes as the temperature of the whole is raised from 15° C. to 25° C.
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## Sanitary Legislation, Nosology, and Sanitary Medicine.

- 1.—Discuss the question of the control of measles, making reference to the prophylactic and curative methods of treatment in your review.
  - 2.—Mention the more important conditions which are productive of infantile mortality, and review the conditions mentioned, with the object of lessening their prejudicial influence.
  - 3.—Mention the offensive trades scheduled in the Public Health Act, 1875, and state how the law relating to these trades has been modified by the Public Health Acts Amendment Act, 1907. Describe the precautions necessary to minimise nuisances from any one of these trades.
  - 4.—What accommodation should be provided in an isolation hospital for a town with a population of 50,000? What are the powers of a sanitary authority for enforcing the removal to an isolation hospital of an unwilling patient?
  - 5.—What are the powers possessed by sanitary authorities for the prevention of the pollution of watercourses, (a) by liquid sewage, (b) by solid refuse? How would you proceed to determine in respect of any particular water-course whether the provisions of the Rivers Pollution Prevention Acts were being infringed?
  - 6.—Mention the causes influencing the prevalence of epidemic diarrhoea, and indicate the preventive measures which should be adopted in an industrial district. Draw up a chart showing the average mortality rate per 1,000 population from this disease during each month of the year.
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## Practical Hygiene, Climatology, etc., and Vital Statistics.

- 1.—Give facts to prove that infectious fevers prevail endemically and epidemically.
- 2.—Give the geographical distribution of yellow fever. Discuss its prophylaxis, and give its diagnosis from hæmoglobin uric fever.
- 3.—Give the average birth-rate, total death-rate, zymotic death-rate, and infant mortality rate (a) in industrial districts, (b) in agricultural districts in England and Wales. What are the causes of the differences in these rates in a and b? Give your views as to the causes of the diminishing birth-rate in this country.

- 4.—Explain the terms “ground air” and “ground water,” and discuss their possible effect on the public health.
- 5.—In a room 15 feet square and 8 feet high two men are engaged in manual work at night time, the room being lighted by coal gas, which is consumed at the rate of 4 cubic feet per hour. What volume of fresh air should be supplied per hour to keep the air of the room reasonably pure? Give reasons for your answer.
- 6.—Set forth in tabular form the average chemical composition of fresh sewage from a water closet town. What should be the average daily dry weather flow of sewage from a water closet town of 20,000 population? Describe a method of sewage purification suitable for such a town.

## EXAMINATIONS FOR THE LICENCE IN DENTAL SURGERY (L.D.S.).

### FIRST EXAMINATION.

MARCH, 1913.

### Chemistry.

- 1.—Five grammes of soda-ash are dissolved in 250 c.c. of water. What volume of a standard solution of hydrochloric acid, containing 36.5 grammes of HCl, per litre, would be required to neutralise 50 c.c. of the soda-ash solution supposing, (a) the soda-ash to be pure sodium carbonate, (b) the soda-ash to contain 80 per cent. of sodium carbonate.  

$$\text{Na.} = 23. \quad \text{C} = 12. \quad \text{O} = 16, \quad \text{Cl.} = 35.5.$$
- 2.—Write an account of hydrogen peroxide, its preparation, properties and uses.
- 3.—Explain exactly the meaning of the formula “SO<sub>2</sub>,” and describe how you would prove it experimentally.
- 4.—How would you distinguish between “corrosive sublimate” and “calomel?” Give their formulæ.
- 5.—What is the active constituent of “formalin”; what are the chemical properties of this compound, and how would you prepare it?

- 6.—Give two examples and formulæ of each class of the following compounds, "ester," "alcohol," "amine," and "ether."
  - 7.—Write notes on the compounds produced by the action of chlorine on methane.
  - 8.—How would you distinguish between aqueous solutions of cane sugar and of grape sugar? How would you prepare one of these sugars from the other?
- (Six questions only to be attempted, of which No. 1 must be one selected.)

### Physics.

- 1.—Describe a simple physical balance. The arms of a balance are unequal in length; a body weighs 43.44 grams when placed in the left hand pan, and 43.66 grams when placed in the right hand pan. Find the ratio of the lengths of the arms and the true mass of the body.
- 2.—How would you determine the change in the volume of a gas at constant temperature due to a change in pressure?  
If a volume of a gas at  $20^{\circ}\text{C}$ . is reduced 10% by an increase of pressure, what rise in temperature will restore the gas to its original volume?
- 3.—Trace the change in volume of 1 kilogram of ice at  $0^{\circ}\text{C}$ ., when it is melted and the temperature is raised from  $0^{\circ}\text{C}$ . to  $20^{\circ}\text{C}$ . What quantity of heat is required in the process? Indicate the method of experiment on which your answer is based.
- 4.—A substance of mass 150 grams at  $10^{\circ}\text{C}$ . is introduced into a calorimeter (water equivalent 10 grams) containing 140 grams of water at  $20^{\circ}\text{C}$ . The final temperature is  $19^{\circ}\text{C}$ . Calculate the specific heat of the substance, and give drawings with explanation of the method of carrying out the experiment.
- 5.—Explain how to mark off, on a sheet of paper fixed to a table, the direction of the magnetic meridian. What is meant by the "declination?"
- 6.—Describe the construction, and explain the use, of a tangent galvanometer.  
If a certain current produce a deflection of  $30^{\circ}$ , show by means of a diagram, the angle of deflection when the current strength is three times as great.

(Five questions only to be attempted.)

JUNE, 1913.

- 1.—An element forms an oxide containing 1 part by weight of oxygen combined with 1.125 parts by weight of the element. In the gaseous state this oxide has a density of 2.35 in relation to air. What is the weight of the element contained in the molecular weight of this oxide?
- 2.—The gas obtained by the action of sulphuric acid on iron sulphide is passed into aqueous solutions of the following salts:—(a) copper sulphate, (b) ferrous sulphate, (c) ferric chloride. Describe the changes you would observe, and explain the actions by equations.
- 3.—How is chlorine made? What is the effect produced by passing this gas into (a) a solution of caustic potash, (b) a solution of potassium iodide, (c) a solution of sulphur dioxide?
- 4.—You are given solutions of each of the following acids, viz., hydrochloric, sulphuric, and nitric acids. How would you distinguish between them, and how prepare a salt of one of these acids?
- 5.—Write a short account of starch, describing its properties, composition, and sources. What experiments would you make to illustrate the changes which starch undergoes when boiled with dilute acids? How do you explain these changes?
- 6.—Fats are described as “ethereal salts” or “esters.” Explain the meaning of this expression, and give an account of the experiments you would make to support this view.
- 7.—Give an account of a method you would use to determine the molecular weight of an organic substance, which is found to dissolve in benzene.
- 8.—Describe how you would prepare a specimen of urea (a) synthetically, (b) from urine? How you would distinguish between an aqueous solution of urea and one of ammonium carbonate?

(Six questions only to be attempted, of which No. 1 must be one selected.)

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### Physics.

- 1.—A rod, one metre long, is pivoted at one end, and at the other end a weight of ten pounds is hung by a string. At what position on the rod must be attached a string, which is pulled vertically upwards with a force of 15

pounds weight, in order that the rod may be in equilibrium in a horizontal position. The weight of the rod may be neglected.

- 2.—Explain how to determine the coefficient of linear expansion of a long zinc rod. The coefficient being .00003, determine the volume at  $50^{\circ}$  C. of a zinc block that at  $0^{\circ}$  C. has a volume of 20 c.c.
- 3.—The volume of a gas is kept constant, how does change of temperature affect the pressure of the gas? Describe an experiment in illustration. If in the above case the temperature is changed from  $20^{\circ}$  C. to  $30^{\circ}$  C., calculate the percentage increase of pressure.
- 4.—State the precautions necessary in making a determination of the latent heat of water, and describe the experiment and method of calculation.  
The latent heat of water being 80 units, what is the result of adding 3 pounds of ice at  $0^{\circ}$  C. to 7 pounds of water at  $60^{\circ}$  C?
- 5.—Given two bar magnets, explain how to magnetise a thin bar of steel so that one end, which is marked, is north-seeking. Describe, with diagram, how to compare the pole strengths of two magnets of equal dimensions by the method of deflection.
- 6.—Describe a copper voltameter, and explain how it may be used to determine the strength of an electric current.

(Five questions only to be attempted.)

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## SECOND EXAMINATION.

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MARCH, 1913.

### Dental Mechanics.

- |   |                                                                                                                                                 |
|---|-------------------------------------------------------------------------------------------------------------------------------------------------|
| { | 1.—Describe how you would repair a crack in a partial gold denture when the front teeth are soldered to the plate and the back teeth are tubes. |
| { | 2.—What is an obturator? Give a brief description of a Kingsley velum.                                                                          |
| { | 3.—Describe the method you would adopt in making a gold bar lower case.                                                                         |



- 4.—What chemical change takes place when a gold plate is annealed? When and why do you use a pickle? What is the pickle composed of?
- 5.—Name some causes of porosity in vulcanite. What kind of denture may come out porous unless extra care is taken, and state what special precautions you would take in such a case?
- 6.—Describe the method you would adopt in making a special impression tray for a mouth where only the first upper bicuspids are standing.

(Four questions only are to be answered, of which two are to be taken from the first half of the paper, and two from the second half.)

### Dental Metallurgy.

- 1.—What are the properties of steel? Describe and explain the processes of hardening and tempering.
- 2.—Briefly describe the construction and explain the use of the various furnaces employed in metallurgical operations.
- 3.—What means are available for estimating temperature in metallurgical operations?
- 4.—What metals would you select to form an alloy for a dental amalgam? In what proportions? Give reasons for the selection of each metal.
- 5.—Describe the properties of the metal platinum, and state its uses for dental purposes.
- 6.—State fully how you would proceed to obtain from scrap gold, pure gold in the form of (a) crystal gold, (b) gold foil.
- 7.—Describe in detail the method of preparing silver solder of the following composition :—
 

|         |     |
|---------|-----|
| Silver, | 61% |
| Copper, | 29% |
| Zinc,   | 10% |

What precautions are necessary in order to obtain the solder of exactly the composition stated?

- 8.—State clearly what you understand by the use of the following terms in connection with alloys :—"Eutectic," "Solid solution," "Pure metal," "Compound." Give examples of the occurrence of each of these constituents.

(Four questions only are to be answered, of which two are to be taken from the first half of the paper, and two from the second half.)



## Dental Materia Medica.

- 1.—Describe the action of the general anæsthetics.
- 2.—Describe the mode of action of saline purgatives. Write a prescription containing rhubarb.
- 3.—What is the action of cocaine? Give the strength of the hypodermic injection.
- 4.—What antiseptics can be used in the mouth? and in what strength?

JUNE, 1913.

## Dental Mechanics.

- 1.—How would you make a vulcanite upper plate of absolutely uniform thickness over the entire palate?  
What methods would you use to remove a warp from a vulcanite plate?
- 2.—How would you repair a broken tooth on a continuous gum case?
- 3.—Give as many reasons as you can for the breakage in teeth soldered on to a plate. How would you remedy the same?
- 4.—Starting from the point where castings and dies have been prepared for you, describe in detail the procedure in making a partial gold upper denture, where clasps have to be fitted, front teeth soldered, and back teeth vulcanized on.
- 5.—Give the composition of the various kinds of dental rubber, their varieties, uses, and respective advantages.
- 6.—What are the principal ingredients of mineral teeth? Name some substances used as colouring materials, and the colours they produce.

(Four questions only are to be answered of which two are to be taken from the first half of the paper, and two from the second half.)

## Dental Metallurgy.

- 1.—What are the various refractory substances used in dentistry? For what purposes are they used?
- 2.—What processes may be employed to secure the metals in a pure condition? Discuss the effects of impurities upon the properties of the metals.
- 3.—Explain the meaning of elasticity? How may this property be measured? Describe the various elastic metals and alloys used in dentistry.
- 4.—How would you determine the melting point of a metal? What information regarding its composition might be secured during the experiment?

- 5.—Describe the method of preparing platinum-silver alloys, and state the properties of these alloys which render them applicable for dental purposes.
- 6.—Give a description of the method employed for rapidly ascertaining the "fineness" of gold plate.
- 7.—State the effect of varying percentages of carbon on the physical and mechanical properties of iron.
- 8.—State the precise meaning of the terms "malleability," "toughness," and "hardness." Illustrate your answer by examples.

(Four questions only are to be answered, of which two are to be taken from the first half of the paper, and two from the second half.)

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### Dental Materia Medica.

- 1.—Define and illustrate the terms:—Anæsthetic, hypnotic, analgesic, stimulant, cumulative action, and idiosyncrasy.
- 2.—Give the name and dosage of some of the volatile oils. Describe their mode of action and their use in dentistry.
- 3.—Describe the action of cocaine. Name the pharmacopœial preparations of cocaine, and give their dosage.
- 4.—Write a prescription for a mouth wash.

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### THIRD EXAMINATION.

MARCH, 1913.

### Anatomy.

- 1.—Give a detailed account of the lingual and inferior dental nerves. Note particularly the relations of these two nerves to the mouth cavity.
- 2.—Describe the origin, course, and distribution of the right phrenic nerve.
- 3.—Give the position and relations of the tonsil and state the sources of its blood supply.

- 4.—Describe the attachments, action, and relations of the external pterygoid muscle.
- 5.—What is the position and what are the immediate relations of the internal jugular vein? Give an account of the tributaries of this vein.
- 6.—Give an account of the soft structures investing the mouth aspect of the hard palate. What nerves and arteries supply the roof of the mouth and whence are they derived?

(Four questions only are to be answered, of which two are to be taken from the first half of the paper, and two from the second half.)

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### Physiology.

- 1.—Describe the properties and general tests for proteins. What substances are obtained when they are subjected to prolonged heating with acids?
- 2.—Give an account of the coagulation of shed blood.
- 3.—Describe the structure and functions of the thyroid gland.
- 4.—Discuss fully the action of human saliva on the food.
- 5.—Describe the process of ossification of a long bone.
- 6.—What is meant by reflex action? Give examples involving—
  - (a) Movement of a limb.
  - (b) Alterations in the vascular system.

(Four questions only are to be answered, of which two are to be taken from the first half of the paper, and two from the second half.)

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### Dental Anatomy and Dental Histology.

- 1.—Give a brief description of a poison fang of a viper.
- 2.—Give as near as you can the time of eruption of the teeth (temporary and permanent). Describe the permanent upper lateral incisor in man.
- 3.—Compare the upper wisdom tooth of man with that of an anthropoid ape.

- 4.—Give a description of the various methods of the attachment of the teeth.
- 5.—Describe in detail how you would prepare a microscopical section of a tooth showing the pulp in situ.
- 6.—In Mammalia, the teeth vary according to the diet of their owners. Give the chief characteristics of the dentitions found in carnivora and herbivora. From analogy with other animals, what should the human diet consist of? Classify the following :— $I_3^0 C_1^0 PM_3^3 M_3^3$ ;  $I_2^2 C_1^1 M_2^2$ ;  $I_3^3 C_1^1 PM_4^4 M_3^3$  and  $I_1^2 C_0^0 PM_2^2 M_3^3$ .

(Four questions only are to be answered, of which two are to be taken from the first half of the paper, and two from the second half.)

JUNE, 1913.

### Anatomy.

- 1.—Describe the superior maxilla.
- 2.—Describe the muscles and nerves of the larynx.
- 3.—Describe the 2nd division of the 5th nerve.
- 4.—Give an account of the muscles, nerves, and blood vessels of the velum palati (soft palate).
- 5.—What structures are contained in the jugular foramen? Describe the appearance and relations of these structures if they are traced downwards for one inch below the base of the skull.
- 6.—Enumerate and give the relative positions of the structures which are in contact with the deep aspect of the ramus of the mandible.

(Four questions only are to be answered, of which two are to be taken from the first half of the paper, and two from the second half.)

### Physiology.

- 1.—What is the composition of inspired and expired air? How would you determine the composition of expired (alveolar) air? What is the effect (if any) of muscular exercise upon the composition of expired air?
- 2.—Give an account of the factors concerned in the secretion of gastric juice.
- 3.—Describe a method of obtaining a pulse tracing in man. Draw a pulse tracing and explain the origin of its different parts.

- 4.—Describe the composition of normal human urine. How would you prepare urea from urine, and what are its properties?
- 5.—What are the chief taste sensations? What nerves are involved, and what is their course?
- 6.—What are the necessary ingredients of a diet for a normal man, and how much of each would be required in a day? Within what limits would it be possible to vary the relative quantities of these ingredients without injury to health? How should the diet be altered in conditions of (a) severe muscular exercise, and (b) complete rest in bed?

(Four questions only are to be answered, of which two are to be taken from the first half of the paper, and two from the second half.)

### Dental Anatomy and Dental Histology.

- 1.—What is the dental formula of the horse? How could you tell the age of a horse by its teeth? Give the names of any extinct ancestors of the horse.
- 2.—Give a brief description of osteo-dentine. Name two animals possessing it.
- 3.—Describe in detail the 1st lower permanent, and the 2nd lower deciduous molars of man.
- 4.—Give the general characteristics of the order rodentia. Describe the dentition of the hare.
- 5.—What is the origin, site, structure, and function of Nasmyth's membrane?
- 6.—Define the following terms, and give one example of each:—hypsodont, thecodont, pleurodont, diphyodont, selenodont. What is meant by the expression "co-relation of growth"?

(Four questions only are to be answered, of which two are to be taken from the first half of the paper, and two from the second half.)

## FINAL EXAMINATION.

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MARCH, 1913.

### Surgery.

- 1.—*Ulcers in the mouth.* On looking into a patient's mouth you see multiple ulcers on the tongue and cheeks. What may be the cause of these, and what steps are you going to take to find out?
- 2.—*Swelling of upper jaw.* A man aged 50 consults you concerning pain in his teeth. On examining his mouth you find a swelling in his upper jaw behind his cheek. The hard palate on the swollen side is depressed, the eye on the same side waters when he is exposed to wind, and there is a polypus in his nose. What is likely to be the cause, what explanation do you give of all this trouble, and what are you going to advise?
- 3.—*Inability to open the mouth.* Discuss the cause and the diagnosis of the conditions which prevent the mouth from being properly opened (*a*) when the trouble is acute (*b*) when it is chronic.
- 4.—What symptoms and conditions in a patient render the use of general anæsthetics inadvisable? How would you prepare a patient for their administration? What are the principal dangers which may occur during their exhibition, and how are these to be met?
- 5.—What are the causes, symptoms, and treatment of empyema of the pleura?
- 6.—How would you diagnose a dislocation of the shoulder joint?

(Four questions only are to be answered, of which two are to be taken from the first half of the paper, and two from the second half.)

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### Dental Surgery, Dental Pathology, and Dental Bacteriology.

- 1.—Describe methods applicable to the isolation of aërobic and of anaërobic organisms in pure cultivation.
- 2.—Give an account of the preparation, standardization, and uses in dental practice of bacterial vaccines.
- 3.—What micro-organisms are likely to be found in the mouth of a person suffering from extensive dental caries? Give a description of any one of these.



- 4.—Give the causes, symptoms, and treatment of a case of Pyorrhœa alveolaris.
- 5.—Give the causes, symptoms, and treatment of a case of necrosis of the mandible.
- 6.—What are the symptoms of a fractured mandible? Describe your treatment of a case of fracture through the canine region, in which all the teeth are standing.
- 7.—Give the causes, symptoms, and treatment of both acute and chronic dento-alveolar abscess.
- 8.—Explain what is meant by the following terms:—Dilaceration, hypoplasia of enamel, impaction, gemination, Hutchinsonian teeth, dental cyst, attrition, and actinomycosis.
- 9.—What is an odontome? Give a classification of them, also the symptoms and treatment.

(Six questions only are to be answered, of which two are to be taken from each section of the paper.)

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JUNE, 1913.

### Surgery.

- 1.—*Facial erysipelas*.—Discuss the diagnosis of a case of facial erysipelas.
- 2.—*Ulcer of the tongue*.—A man of 45 years of age consults you regarding his teeth, which he says are aching. You find an ulcer on one side of his tongue (opposite to a jagged tooth) said to be of 13 months' duration. There is a bit of cotton wool in his ear on the same side. Discuss the diagnosis and offer advice.
- 3.—*Noma*.—Describe a case of gangrenous cheek produced by noma, and discuss its pathology.
- 4.—Where and why do gumboils occasionally open externally through the skin?
- 5.—What anomalies in the arrangement and development of the teeth may be associated with double hare lip and cleft palate?
- 6.—During the extraction of a tooth it slips from the forceps. What symptoms, immediate and remote, would indicate that it had passed into the air passages?

(Four questions only are to be answered, of which two are to be taken from the first half of the paper, and two from the second half.)



## Dental Surgery, Dental Pathology, and Dental Bacteriology.

- 1.—What do you understand by “agglutination”? Give some account of the phenomenon and of its application in the practice of medicine.
- 2.—What methods are available for obtaining pure cultures of aërobic micro-organisms?
- 3.—Describe in full the experiments which may be carried out in order to detect the tubercle bacillus in a tuberculous product.
- 4.—Describe Miller’s theory of caries of the dentine. Describe the microscopical appearances of caries of the enamel, also of the dentine.
- 5.—Discuss the effect of congenital syphilis on the permanent teeth.
- 6.—Enumerate the different varieties of stomatitis of the gums and mucous membrane of the mouth. Describe the causes, symptoms, and treatment of one of them.
- 7.—What are the advantages and disadvantages of fixed and removable apparatus in the treatment of irregularities of the teeth.
- 8.—Give the causes, symptoms, morbid anatomy, and treatment of a non-infective, chronic, local periodontitis.
- 9.—What are the chief difficulties, complications and sequelae connected with the extraction of the teeth (not under a general anaesthetic)?

(Six questions only are to be answered, of which two are to be taken from each section of the paper.)

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## DIPLOMA IN PSYCHIATRY.

JUNE, 1913.

**Anatomy.**

- 1.—Discuss the development of the corpus striatum.
- 2.—Give a description of the frontal lobe of the brain.
- 3.—Describe the different structures that enter into the formation of the third ventricle.
- 4.—Describe the gross changes which affect the cerebellum from its first appearance in the embryo until the condition at birth is attained. Describe and explain the features which distinguish the human cerebellum from that of other mammals.
- 5.—Give a description of the main sympathetic cord in the neck region and the disposition of the branches derived from the cervical ganglia.
- 6.—Discuss the evolution and interpretation of the cerebral sulci.

(Four questions only are to be answered, of which two are to be taken from the first half of the paper, and two from the second half.)

**Physiology.**

- 1.—Describe the mode of development of the cerebral cortex, giving a brief account of the structure of the primary laminae of which it is composed.
- 2.—Discuss the factors concerned in the maintenance of equilibrium.
- 2.—What do you understand by the terms "protopathic" and "epicritic" sensibility. Discuss the evidence as to the existence of these two forms of sensibility.
- 4.—Give an account of the part played by afferent impressions in the regulation of the reflex movements which may be observed in a spinal animal.
- 5.—Describe the minute structure of the cerebral cortex in the precentral area, and point out the chief deviations from this structure to be found in other parts of the cortex.
- 6.—How may the activities of the brain be affected by alterations in the composition of the blood?

(Four questions only are to be answered, of which two are to be taken from the first half of the paper, and two from the second half.)

## Psychology.

- 1.—What are the chief varieties of memory images? Describe some of the experimental methods used in studying the conditions upon which the revival of memory images depends?
- 2.—Distinguish between the terms “perception” and “conception.” Illustrate the various processes of cerebral association which are included under these terms.
- 3.—What do you understand by instinct? Discuss briefly the existence of instinct in man.
- 4.—What facts have been held to justify the notion of sub-conscious mental activity? State as concisely as possible one of the current doctrines of sub-consciousness and of its relationship to normal mental processes.

## MATRICULATION EXAMINATION.

MARCH, 1914.

### English.

- 1.—Write an essay on *one* of the following subjects:—
  - (1) The value of Arctic exploration.
  - (2) My favourite books.
  - (3) The Yorkshire dales *or* the Border Country.
  - (4) Civil wars in England.
  - (5) Emigration.
- 2.—Connect the following passages with the argument of the play or poem in which they are found:—
  - (a) And this is why I sojourn here  
     Alone and palely loitering.  
     Though the sedge is wither'd from the lake  
     And no birds sing.
  - (b) To-morrow to fresh woods and pastures new.
  - (c) I had thought to let in some of all professions that  
     go the primrose way to the everlasting bonfire.
  - (d) O joy! that in our embers  
     Is something that doth live  
     That Nature yet remembers  
     What was so fugitive!

- (e) A noise like of a hidden brook  
In the leafy month of June,  
That to the sleeping woods all night  
Singeth a quiet tune.
  - (f) Where the bee sucks, there suck I :  
In a cowslip's bell I lie.
  - (g) And moving thro' a mirror clear  
That hangs before her all the year,  
Shadows of the world appear.
  - (h) The lunatic, the lover and the poet  
Are of imagination all compact.
  - (i) A heavy weight of hours has chain'd and bow'd  
One too like thee—tameless, and swift, and proud.
- 3.—Show your familiarity (by summary and quotation) with any three of the following poems:—*The Forsaken Merman*, *Kubla Khan*, *The Highland Reaper*, *L'Allegro*, *How they brought the good news from Ghent to Aix*, *Locksley Hall*, *Elegy written in a Country Churchyard*.
- 4.—Describe as far as you can in the author's own words, one character in each of the following:—*The Prologue to the Canterbury Tales*, *The Spectator Club*, *The Essays of Elia*.
- 5.—Name one novel by each of the following writers:—Scott, Thackeray and Dickens, and state as concisely as you can your reasons for liking or disliking them.
- 6.—Give an account of the plot of any play or novel by a living writer that you have seen or read.
- 7.—Name some of the most famous biographies in our literature and give some account of any one of them.

(All candidates must attempt the essay, to which 30 per cent. of the marks are allotted. Five only of the other questions should be attempted, including Nos. 2, 3 and 4 in any case.)

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## English History.

### SECTION A.

- 1.—Give some account of the Anglo-Saxon Conquest of England.
- 2.—Explain the steps by which the kings of Wessex became kings of England.
- 3.—Give a brief account of the character and policy of William the Conqueror.

- 4.—What do you know of the contents and value of Magna Charta?
- 5.—Why is the reign of Edward I. so important?
- 6.—Why did the English finally fail in the Hundred Years' War?

## SECTION B.

- 7.—Explain and criticize the attitude of Henry VIII. towards the Papacy.
- 8.—Account for the failure of Mary Tudor to check the Reformation in England?
- 9.—“Elizabeth profited more by the mistakes of her opponents than by her own personal ability.” Discuss this view.
- 10.—Was James I. wholly to blame for his difficulties with Parliament?
- 11.—What is your view of Oliver Cromwell?
- 12.—Consider the Declaration of Right as a commentary on the reign of James II.

## SECTION C.

- 13.—Why is the Treaty of Utrecht a landmark in our Constitutional and Colonial History?
- 14.—What criticisms have been passed on Sir Robert Walpole and how far are they just?
- 15.—Sketch the rise of the British Empire—  
*either in America.*  
*or in India*
- 16.—Discuss the influence on England of the French Revolution.
- 17.—Trace the growth of Religious Equality in England.
- 18.—Give some account *either* of the Factory Acts, *or* of the Repeal of the Corn Laws.

(Six questions only should be attempted, chosen from not less than two sections of the paper.)

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## Geography.

## SECTION 1.

- 1.—Describe the movements of the sun, earth and moon with respect to each other.  
 Explain the occurrences of *new moon* and *full moon*.
- 2.—Describe the astronomical phenomena concerned in the four seasons.

- 3.—Write a description of the bed of the Atlantic. What instruments are used in deep-sea soundings?
- 4.—Describe the mountain system of Asia *or* of North America.
- 5.—Write an account of the Monsoons and show how they affect the navigation in the Indian Ocean and the climate of India.

## SECTION 2.

- 6.—Name the chief railway lines that radiate from London, give the districts served by these lines and describe a journey along *one* line.
- 7.—Name the islands that lie in the track of steamers going from Southampton to Cape Town and describe two of them.  
How do you account for the decay in the importance of some of these islands?
- 8.—Write an account of the production, trade and ports of New Zealand; deal especially with the interchange of commodities with the British Isles.
- 9.—What interchange of production takes place (*a*) between England and Scotland and (*b*) between Scotland and Ireland? Give reasons for your answer, stating the particular localities with their chief towns from which come the articles you mention.
- 10.—Name the British possessions in the West Indies. Describe one of the islands and the general trade of the area. Is the trade of the West Indies increasing or diminishing? Give reasons for your answer.

(Answer six questions, not more than *three* questions from either Section. Illustrate the answers with sketch maps and diagrams.)

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## Experimental Science.

## SECTION A.

- 1.—Describe the method of determining the specific gravity of alcohol at  $15^{\circ}\text{C}$ . by means of a specific gravity bottle. The specific gravity of alcohol at  $15^{\circ}\text{C}$ . being 0.795, what volume of alcohol at this temperature will have a mass of one kilogram?
- 2.—A carriage runs down an inclined plane with uniform acceleration. It starts from rest, and after five seconds has travelled two metres down the plane. What is the velocity of the carriage two seconds after its start from rest? Explain fully. Describe the details of the experiment.

- 3.—Explain how to graduate an ordinary thermometer (*a*) on the centigrade scale (*b*) on the Fahrenheit scale. Find the values of the following temperatures on the centigrade scale:—(1) the temperature of the human body  $98\cdot4^{\circ}\text{F.}$ ; (2) the temperature of a living room  $60^{\circ}\text{F.}$ ; (3) the temperature of a cold day in winter,  $20^{\circ}\text{F.}$  below zero.
- 4.—The boiling point of water, when the atmospheric pressure is (*a*) 720 mms. of mercury, is  $98^{\circ}\cdot49\text{ C.}$ , (*b*) 750 mms. of mercury, is  $99^{\circ}\cdot63\text{ C.}$ , (*c*) 780 mms. of mercury, is  $100^{\circ}\cdot73\text{ C.}$

Explain these statements fully. What temperature should a thermometer read when placed in steam from water boiling under an atmospheric pressure of 745 mms. of mercury?

#### SECTION B.

- 1.—You are given a sample of limestone, how would you make quick lime and slaked lime from it? What experiments would you make with each of these three substances to distinguish one from the other.
- 2.—Describe the preparation of the gas oxygen and three experiments to illustrate its properties. Give a sketch of the apparatus you would use.
- 3.—What are the chief constituents of air; what changes in composition are effected by (*a*) shaking air with water, (*b*) passing air over heated copper, (*c*) passing air through lime water?
- 4.—You are given a sample of washing soda; how could you prepare from it (*a*) pure water, (*b*) common salt?

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### Mathematics.

#### SECTION I.

- 1.—If a railway journey of 177 miles 3 furlongs takes 3 hours  $56\frac{1}{2}$  minutes, what is the rate per hour?
- 2.—The cost of levelling, etc., a square cricket-field at £175 9s. 4d. per acre is £987; find the cost of surrounding it with a railing costing 3s. 2d. per yard.

#### SECTION II.

- 3.—The diagonals of a parallelogram are 5·2 in. and 3·4 in. long, and the angle between them is  $36^{\circ}$ . Draw the parallelograms, and measure the acute angle between its sides.



- 4.—If any side of a triangle be produced, the exterior angle is equal to the two interior and opposite angles.

$ABC$  is any acute angle,  $AB$  is bisected in  $D$ , and at  $K$  in  $BC$  the angle  $DKB$  is made equal to the angle  $DBK$ ; show that  $AK$  is perpendicular to  $BC$ .

- 5.—If  $D$  is the mid-point of the side  $BC$  of a triangle in which  $AB=3$  in.,  $AC=5$  in., and  $AD=3.5$  in. long, construct the triangle.

- 6.—If  $A, B, C, D$  are four points on a circle and  $AB, CD$  meet in  $O$ , show that the rectangles  $OA \cdot OB$  and  $OC \cdot OD$  are equal.

A circle of radius 5 in. is given; construct the circle whose centre is distant 10 in. from that of the given circle and which has a chord of length 6 in. in common with it.

### SECTION III.

- 7.—Simplify the expressions:

$$(1) \quad (bc + ca + ab)^2 - (b^2c^2 + c^2a^2 + a^2b^2);$$

$$(2) \quad \frac{1}{\left(\frac{a}{b} - 1\right)\left(\frac{a}{c} - 1\right)} + \frac{1}{\left(\frac{b}{c} - 1\right)\left(\frac{b}{a} - 1\right)} + \frac{1}{\left(\frac{c}{a} - 1\right)\left(\frac{c}{b} - 1\right)}.$$

- 8.—Solve the equations:

$$(1) \quad 3x = 10 - \sqrt{5x + 6};$$

$$(2) \quad \frac{x - y}{2} \div \frac{x + y}{3} = \frac{25}{6},$$

$$x + y - 5 = \frac{2}{3}(y - x).$$

- 9.—Reduce the fraction  $\frac{10x^4 - 7x^3 + x^2}{4x^4 - 2x^3 - 2x + 1}$  to its lowest terms.

- 10.—A man walks from  $A$  to  $B$  at a uniform pace in a certain time. In returning he walks the first half of the distance at the rate of one mile an hour slower, and the second half of the distance at the rate of two miles an hour faster than in going, and accomplishes the distance in the same time. Find his rate of walking from  $A$  to  $B$ .

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### Extra Mathematics.

- 1.—The Eiffel tower being 300 metres high, calculate its height in feet, taking a metre as 39.371 inches. Find to the nearest mile the distance of the horizon visible from the top, assuming this distance to be the square root of the product of the height of the tower and the earth's diameter, taking the latter to be 7,900 miles.

2.—If a man buys two articles, one of which costs half as much again as the other, and then sells the cheaper at a profit of 7 per cent. and the dearer at a profit of 12 per cent., what is his percentage of profit on the combined sale?

3.—Find the H. C. F. of the expressions

$$x^4 + x^2 - 2x + 6, \quad x^4 + x^3 - x^2 - 7x - 6.$$

4.—Solve the equations:

$$(1) \quad \frac{2x-5}{x-4} + \frac{3x+5}{2x-1} = 5;$$

$$(2) \quad y+z-ax=p, \quad z+x-by=q, \quad x+y-cz=r.$$

5.—Insert three arithmetic means between 4 and 324. If  $n$  geometric means be inserted between  $a$  and  $b$ , prove that their product is equal to  $(ab)^{\frac{n}{2}}$ .

6.—Find the number of combinations of  $n$  things taken  $r$  at a time.

If the ratio between the number of combinations of  $2n$  things taken  $n-1$  at a time and the number of combinations of  $2(n-1)$  things taken  $n$  at a time is  $132/35$ , find  $n$ .

7.—If a straight line touch a circle and a secant be drawn from the point of contact, the angle between the secant and the tangent is equal to the angle in the alternate segment of the circle.

A line  $AD$  is drawn bisecting the angle  $A$  of a triangle  $ABC$  and meeting  $BC$  in  $D$ . Find a point  $E$  in  $BC$  produced such that the square on  $ED$  is equal to the rectangle  $EB, EC$ .

8.—If  $P$  is any point in the plane of a triangle  $ABC$ , prove that the three straight lines joining the mid points of  $PA$  and  $BC$ ,  $PB$  and  $CA$ ,  $PC$  and  $AB$  bisect each other.

9.—Give a direct geometrical proof of the formula

$$\sin 2A = 2 \sin A \cos A.$$

Find all the values of  $\theta$  between 0 and  $2\pi$  which satisfy the equation

$$\sec^2 \theta \operatorname{cosec}^2 \theta + 2 \operatorname{cosec}^2 \theta = 8.$$

10.—Show that in any plane triangle

$$b \cos C + c \cos B = a.$$

From this equation and two similar ones, by eliminating the ratios  $a:b:c$  show that

$$\cos^2 A + \cos^2 B + \cos^2 C + 2 \cos A \cos B \cos C = 1.$$

11.—Solve the triangle whose sides are 119, 111, and 92 yards long respectively. Show also that its area is 10 sq. yds. less than an acre.

(Eight questions to be attempted.)

## Latin.

(All Candidates must, in addition to Section A, attempt either B or C or D of this paper.)

## A.

(For all Candidates.)

TRANSLATION FROM BOOKS NOT SPECIFIED.

TRANSLATION INTO LATIN.

## 1.—Translate:—

(a) *Famous Romans honoured with Statues.*

Lars Tolumnius, rex Veientium, quattuor legatos populi Romani Fidenis interemit, quorum statuæ steterunt usque ad meam memoriam in rostris: iustus honos: eis enim maiores nostri, qui ob rem publicam mortem obierant, pro brevi vita diuturnam memoriam reddiderunt. Cn. Octavi, clari viri et magni, qui primus in eam familiam, quæ postea viris fortissimis floruit, attulit consulatum, statuam videmus in rostris. Nemo tum novitati iuvidebat: nemo virtutem non honorabat. At ea fuit legatio Octavi, in qua periculi suspicio uou subesset. Nam cum esset missus a senatu ad animos regum perspicieudos liberorumque populorum, maximeque, ut nepotem regis Antiochi, eius, qui cum maioribus nostris bellum gesserat, classis habere, elephantos alere prohiberet, Laudiceæ in gymnasio a quodam Leptine est interceptus.

(CICERO, *Philippic* IX, ch. 2.)

(b) *The Conclusion of a Treaty of Peace.*

Et senatus eam pacem servandam ceusuit, et paucos post dies populus iussit. Foedus in Capitolio cum Autipatro principe legationis et eodem fratris filio regis Antiochi est ictum. Auditæ deinde et aliæ legationes ex Asia sunt. Quibus omnibus datum est responsum, decem legatos more maiorum senatum missurum ad res Asiæ disceptandas compouendasque; summam tamen hanc fore, ut cis Taurum montem, quæ intra regni Antiochi fines fuissent, Eumeni attribuerentur præter Lyciam Cariamque usque ad Maeandrum amnem; ea civitatis Rhodiorum essent; ceteræ civitates Asiæ, quæ Attali stipendiariæ fuissent, eadem vectigal Eumeni penderent; quæ vectigales Antiochi fuissent, eae liberæ atque immunes essent.

(LIVY XXXVII, ch. 55.)

## 2.—Translate into Latin:—

(a) We hope to return to Italy on the 23rd of March.

(b) If you had seen your friend in Rome, what would you have told him?

(c) The wall was fifteen feet high and nearly four feet broad.

(d) Seeing that the man was ill, he asked him to come home with him.

(e) Do you not think that the citizen who does such things is worthy of death?

## B.

## SPECIFIED AUTHOR AND GRAMMAR.

VIRGIL, *Aeneid* I.

## 1.—Translate:—

(a) Talia flammato secum dea corde volutans  
nimborum in patriam, loca feta furentibus Austris,  
Aeoliam venit. hic vasto rex Aeolus antro  
luctantis ventos tempestatesque sonoras  
imperio premit ac vinclis et carcere frenat.  
illi indignantes magno cum murmure montis  
circum claustra fremunt; celsa sedet Aeolus arce  
sceptrum tenens mollitque animos et temperat iras;  
ni faciat, maria ac terras caelumque profundum  
quippe ferant rapidi secum verrantque per auras.  
sed pater omnipotens speluncis abdidit atris  
hoc metuens molemque et montis insuper altos  
imposuit, regemque dedit qui foedere certo  
et premere et laxas sciret dare iussus habenas.  
(*Aeneid* I. 50-63.)

(b) Restitit Aeneas claraque in luce refulsit  
os umerosque deo similis; namque ipsa decoram  
caesariem nato genetrix lumenque iuventae  
purpureum et laetos oculis adflarat honores:  
quale manus addunt ebori decus, aut ubi flavo  
argentum Pariusve lapis circumdatur auro.  
tum sic reginam adloquitor cunctisque repente  
improvisus ait: 'coram, quem quaeritis, adsum,  
Troius Aeneas, Libycis ereptus ab undis.  
o sola infandos Troiae miserata labores,  
quae nos, reliquias Danaum, terraeque marisque  
omnibus exhaustis iam casibus, omnium egenos,  
urbe, domo socias, grates persolvere dignas  
non opis est nostrae, Dido, nec quidquid ubique est  
gentis Dardaniae, magnum quae sparsa per orbem.'  
(*Aeneid* I. 588-602.)

2.—Parse—*luctantis, refulsit, adflarat, miserata*. Explain the mood and tense of *ferant*, and the case of *arce* and *umeros*.

3.—Give the gender, genitive singular, and genitive plural of—*orator, agricola, senex, iter, corpus, cor, ficus*.

4.—Give the main parts of—*fallo, cupio, rogitō, cresco, haurio, haereo, eado*.

- 5.—Write down (a) the imperfect subjunctive passive of *facio*, (b) the imperatives of *nolo*, (e) the superlatives of *malevolus*, *rapax*, *aridus*, *neglegens*.
- 6.—Write in *Oratio Recta* the words in A 1 (b) from 'decem legatos' to 'Rhodiorum essent.'

## C.

## ALTERNATIVE SPECIFIED AUTHOR AND GRAMMAR.

CICERO, *Pro Roscio*.

## 1.—Translate:—

(a) *Occiso Sex*. Roscio primus Ameriam nuntiat Mallius Glaucia quidam, homo tenuis, libertinus, cliens et familiaris istius T. Rosci, et nuntiat domum non fili sed T. Capitonis inimici; et cum post horam primam noctis occisus esset; primo diluculo nuntius hic Ameriam venit; decem horis nocturnis sex et quinquaginta milia passuum cisiis pervolavit, non modo ut exoptatum inimico uuntium primus adferret sed etiam cruorem inimici quam recentissimum telumque paulo ante e corpore extractum ostenderet. Quadriduo quo haec gesta sunt res ad Chrysogonum in castra L. Sullae Volaterras deferretur; magnitudo pecuniae demonstratur; bonitas praediorum—nam fundos decem et tris reliquit qui Tiberim fere omnes tanguunt—huius inopia et solitudo commemoratur; demonstrant, cum pater huiusce Sex. Roscius, homo tam splendidus et graciosus, nullo negotio sit occisus, perfacile hunc hominem incautum et rusticum et Romae ignotum de medio tolli posse. (VII. 19-20.)

(b) In privatis rebus si qui rem mandatam non modo malitiosius gessisset sui quaestus aut commodi causa verum etiam negligentius, eum maiores summum admisisse dedecus existimabant. Itaque mandati constitutum est iudicium non minus turpe quam furti, credo, propterea quod quibus in rebus ipsi interesse non possumus, in eis operae vestrae vicaria fides amicorum supponitur; quam qui laedit, oppugnat omnium commune praesidium et, quantum in ipso est, disturbat vitae societatem. Non enim possumus omnia per nos agere; alius in alia est re magis utilis. Idcirco amicitiae comparantur ut commune commodum mutuis officiis gubernetur. (XXXVIII. 111.)

2.—Parse—*afferret*, *tollit*, *gessisset*, *neglegentius*.

Explain the mood and tense of *ostenderet*, *sit occisus*, and the case of *cisiis*.

## 3-6.—Answer Questions 3, 4, 5, 6 in Section B.

## D.

## ADDITIONAL PASSAGES FROM BOOKS NOT SPECIFIED AND GRAMMAR.

(Alternative to B or C.)

## 1.—Translate:—

(a) *The Safe-keeping of a Prisoner Overnight.*

Inde abducto eo in curiam, et senatu vocato, consultari coeptum. Iam invesperascebat, et non modo cetera, sed ne in proximam quidem noctem ubi satis tuto custodiretur, expediebant. Obstupuerant ad magnitudinem pristinae eius fortunae virtutisque, et neque ipsi domum recipere custodiendum audebant, nec cuiquam uni custodiam eius satis credebant. Admonent deinde quidam, esse thesaurum publicum sub terra, saxo quadrato saeptum; eo vinctus dimittitur, et saxum ingens, quo operitur, machina superimpositum est. Ita loco potius quam homini cuiquam credendam custodiam rati, lucem insequentem exspectaverunt.

(LIVY XXXIX., chs. 49 (*sub fin.*), 50.)invesperascebat=*it was turning to evening.*(b) *Turnus rushes to oppose Aeneas.*

Dixit, et e curru saltum dedit ocus arvis  
perque hostis, per tela ruit maestamque sororem  
deserit ac rapido cursu media agmina rumpit.  
ac veluti montis saxum de vertice praeceps  
cum ruit avulsum vento, seu turbidus imber  
proluit aut annis solvit sublapsa vetustas;  
fertur in abruptum magno mons improbus actu  
exsultatque solo, silvas armenta virosque  
involvens secum: disiecta per agmina Turnus  
sic urbis ruit ad muros, ubi plurima fuso  
sanguine terra madet striduntque hastilibus aurae,  
significatque manu et magno simul incipit ore:  
'parcite iam, Rutuli, et vos tela inhibete, Latini;  
quaecumque est fortuna, mea est; me verius unum  
pro vobis foedus luere et decernere ferro.'

(VIRGIL, *Aeneid* XII. 681-95.)2.—Parse—*obstupuerant, audebant, avulsum, disiecta.*

Explain mood and tense of *custodiretur*, and the case of *arvis* and *fuso*.

## 3-6.—Answer Questions 3, 4, 5, 6 in Section B.



## Greek.

[N.B.—Candidates must attempt Section A of this paper, and, in the event of their not offering a Specified Author, Section B also.]

## A.

PASSAGES FROM BOOKS NOT SPECIFIED.

SENTENCES FOR TRANSLATION INTO GREEK.

## 1.—Translate:—

(a) *Eteonikus foils the Reed-bearers' Plot.*

Ἀναλαβὼν δὲ μεθ' ἑαυτοῦ ἄνδρας πεντεκαίδεκα ἐγχειρίδια ἔχοντας ἐπορεύετο κατὰ τὴν πόλιν, καὶ ἐντυχὼν τινι ὀφθαλμιῶντι ἀνθρώπῳ ἀπιόντι ἐξ ἰατρείου, κάλαμον ἔχοντι, ἀπέκτεινε. θορύβου δὲ γενομένου καὶ ἐρωτώντων τινῶν διὰ τί ἀπέθανεν ὁ ἄνθρωπος, παραγγέλλειν ἐκέλευεν ὁ Ἑτεόνικος, ὅτι τὸν κάλαμον εἶχε. κατὰ δὲ τὴν παραγγελίαν ἐρρίπτουν πάντες ὅσοι εἶχον τοὺς καλάμους, αἰὲ ὁ ἀκούων δεδιὼς μὴ ὀφθείη ἔχων. μετὰ δὲ ταῦτα ὁ Ἑτεόνικος συγκαλέσας τοὺς Χίους χρήματα ἐκέλευσε συνενεγκεῖν, ὅπως οἱ ναῦται λάβωσι μισθὸν καὶ μὴ νεωτερίσωσιν τι· οἱ δὲ εἰσῆνεγκαν· ἅμα δὲ εἰς τὰς ναῦς ἐσήμηνεν εἰσβαίνειν,

(XENOPHON, *Hellenics*, ii. 1. 3.)

ἐγχειρίδια, daggers. ὀφθαλμιῶντι, with diseased eyes.  
ἰατρείου, a surgery. κάλαμον, reed. συνενεγκεῖν.  
join in contributing.

(b) *Active Preparations for War.*

Ἐπειδὴ δὲ ἔαρ ὑπέβαινε, συνήγαγε πᾶν τὸ στράτευμα εἰς Ἐφεσον· ἀσκήσαι δὲ καὶ αὐτὸ βουλόπενος, ἄθλα προὔθηκε καὶ ταῖς ἰππικαῖς τάξεσιν, ἥτις κράτιστα ἂν ἰππεῖοι, καὶ ταῖς ὀπλιτικαῖς, ἥτις ἂν ἄριστα σωματίων ἔχοι· καὶ πελτασταῖς δὲ καὶ τοξόταις ἄθλα προὔθηκεν, οἷτινες κράτιστοι τὰ προσήκοντα ἔργα φαίνονται. ἐκ τούτου δὲ παρῆν ὁρᾶν τὰ μὲν γυμνάσια μεστὰ τῶν ἀνδρῶν γυμναζομένων, τὸν δὲ ἰππόδρομον ἰππέων ἰππαζομένων, τοὺς δὲ ἀκοντιστὰς καὶ τοὺς τοξότας ἐπὶ στόχον ἰέντας· ἀξίαν δὲ καὶ ὄλην τὴν πόλιν, ἐν ᾗ ἦν, θέας ἐποίησεν. ἦ τε γὰρ ἀγορὰ μεστή



ἦν παντοδαπῶν καὶ ὄπλων καὶ ἵππων, ὠνίων, οἳ τε χαλκο-  
τύποι καὶ οἱ τέκτονες καὶ οἱ σιδηρεῖς καὶ σκυτεῖς καὶ γρα-  
φεῖς πάντες πολεμικὰ ὄπλα κατεσκευάζον. ὥστε τὴν  
πόλιν ὄντως ἡγήσω ἂν πολέμου ἐργαστήριον εἶναι.

(XENOPHON, *Agésilans* i. 25.)

ἔαρ, spring. μεστά, full. ἀξίαν θέας, worth seeing.  
ὠνίων, for sale.

2.—Translate into Greek:—

- (a) The master is afraid that the slave will not come.
- (b) The king sent messengers to announce this.
- (c) If he did that, he would be a wise man.
- (d) After the battle, the soldiers advanced towards the river.
- (e) Before the army of the Athenians arrived, the enemy fled.

B.

ADDITIONAL PASSAGES FROM BOOKS NOT SPECIFIED.

GRAMMAR.

1.—Translate:—

- (a) *Negotiations between Persians and Greeks.*

Ὅτε δ' αὕτη ἡ μάχη ἐγένετο Τισσαφέρνης ἐν Σάρδε-  
σιν ἔτυχεν ὦν ὥστε ἡτιῶντο οἱ Πέρσαι προδεδόσθαι ὑπ  
αὐτοῦ. γνοὺς δὲ καὶ αὐτὸς ὁ Περσῶν βασιλεὺς Τισσα-  
φέρνην αἵτις ἐῖναι τοῦ κακῶς φέρεσθαι τὰ ἑαυτοῦ, Τιθραύ-  
στην καταπέμψας ἀποτέμνει αὐτοῦ τὴν κεφαλὴν. τοῦτο δὲ  
ποιήσας ὁ Τιθραύστης πέμπει πρὸς τὸν Ἀγησίλαον πρέσβεις  
λέγοντας· ὦ Ἀγησίλαε, ὁ μὲν αἴτιος τῶν πραγμάτων καὶ  
ὑμῖν καὶ ἡμῖν ἔχει τὴν δίκην· βασιλεὺς δὲ ἀξιοῖ σὲ μὲν  
ἀποπλεῖν οἴκαδε, τὰς δ' ἐν τῇ Ἀσίᾳ πόλεις αὐτονόμους  
οὔσας τὸν ἀρχαῖον δασμὸν αὐτῷ ἀποφέρειν. ἀποκριναμένου  
δὲ τοῦ Ἀγησιλάου ὅτι οὐκ ἂν ποιήσῃ ταῦτα ἄνευ τῶν οἰκοι  
τελῶν, Σὺ δ' ἀλλά, ἕως ἂν πύθῃ τὰ παρὰ τῆς πόλεως, μετα-  
χώρησον, ἔφη, εἰς τὴν Φαρναβάζου, ἐπειδὴ καὶ ἐγὼ τὸν  
σὸν ἐχθρὸν τετιμώρημαι.

(XENOPHON, *Hellenics* iii. 4. 25.)

αἰτιᾶσθαι, blame.     τελῶν, authorities.  
τιμωρεῖσθαι, punish.

(b) *Alcestis says farewell to her husband.*

Οὐκ ἠθέλησα ζῆν ἀποσπασθεῖσά σου  
σὺν παισὶν ὀρφανοῖσιν, οὐδ' ἐφεισάμην  
ἧβης, ἔχουσ' ἐν οἷς ἐτερπόμην ἐγώ.  
καίτοι σ' ὁ φύσας χῆ τεκοῦσα προύδοσαν,  
καλῶς μὲν αὐτοῖς κατθανεῖν ἦκον βίου,  
καλῶς δὲ σῶσαι παῖδα κεῦκλεως θανεῖν.  
μόνος γὰρ αὐτοῖς ἦσθα, κοῦτις ἐλπίς ἦν  
σοῦ κατθανόντος ἄλλα φιλύσειν τέκνα.  
κάγώ τ' ἂν ἔζων καὶ σὺ τὸν λοιπὸν χρόνον,  
κοῦκ ἂν μονωθεὶς σῆς δάμαρτος ἔστενες  
καὶ παῖδας ὠρφάνευες. ἀλλὰ ταῦτα μὲν  
θεῶν τις ἐξέπραξεν ὥσθ' οὕτως ἔχειν.

(EURIPIDES, *Alcestis* 287-98.)

ἀποσπασθεῖσα, dragged away.     φιλύειν, to beget.

2.—Parse—ἡτιῶντο, προδεδόσθαι, λέγοντας, ὑμῖν, ποιήσεις.

3.—Give the genitive and accusative singular and dative plural of—  
γένος, λόγος, βουλή, γυνή, παῖς, χρήμα, πρᾶξις, τριήρης,  
ὄρνις.

4.—Compare—κακῶς, καλῶς, ταχύς, ἐχθρός, μέγας, φίλος, ὀρθός.

5.—Give the principal parts of—τυγχάνω, γίγνομαι, πέμπω  
ἀποκτείνω, καθίστημι; and the 2nd person aorist imperative  
active of—λύω, ποιέω, δίδωμι.

6.—With what cases are πρὸς, παρά, κατά used, and with what  
differences in meaning? Give examples.

## French.

## 1.—Translate into English :—

(a) *The Runaway Slave.*

Le bon naturel de Paul et Virginie se développait de jour en jour. Un dimanche, au lever de l'aurore, leurs mères étant allées à la première messe de l'église des Pamplémousses, une négresse se présenta sous les bananiers qui entouraient leur habitation. Elle était décharnée comme un squelette. Elle se jeta aux pieds de Virginie, qui préparait le déjeuner de la famille, et lui dit : 'Ma jeune demoiselle, ayez pitié d'une pauvre esclave fugitive : il y a un mois que j'erre dans ces montagnes, demi-morte de faim, souvent poursuivie par des chasseurs et par leurs chiens. Je fuis mon maître, qui est un riche habitant de la Rivière-Noire ; il m'a traitée comme vous le voyez.' En même temps, elle lui montra son corps sillonné de cicatrices profondes par les coups de fouet qu'elle en avait reçus. Elle ajouta : 'Je voulais aller me noyer, mais, sachant que vous demeuriez ici, j'ai dit : Puisqu'il y a encore de bons blancs dans ce pays, il ne faut pas encore mourir.'

(b) *In the Woods on a windy Night.*

Dans le lointain, j'apercevais une masse noire qui couvrait tout le pays. Cela semblait s'avancer lentement vers moi, et pendant un instant j'eus envie de retourner sur mes pas. Un chien qui se mit à aboyer me rendit un peu de confiance, et presque aussitôt je reconnus que la masse noire était une forêt que la route allait traverser. En y entrant, il me sembla que le vent était encore plus violent. Il soufflait par rafales, et les arbres, qui se heurtaient avec force, faisaient entendre des plaintes en se penchant très bas. J'entendais de longs sifflements, des craquements et des chutes de branches ; puis j'entendis marcher derrière moi, et je sentis qu'on me touchait à l'épaule. Je me retournai vivement, mais je ne vis personne. Pourtant j'étais sûre que quelqu'un m'avait touchée du doigt ; puis les pas continuaient comme si une personne invisible tournait autour de moi ; alors je me mis à courir avec une telle vitesse que je ne sentais plus si mes pieds touchaient la terre. Les cailloux sautaient sous mes souliers et retombaient derrière moi avec un bruit de grêle. Je n'avais qu'une idée : courir jusqu'au bout de la forêt.

## 2.—Write out the following :—

(a) The present subjunctive (all persons) of—*vouloir*, *sentir*, *aller*, *craindre*.

(b) The future, first person singular, of—*pouvoir*, *faire*, *courir*, *venir*.

(c) The imperfect indicative, third person plural, of—*coudre, prendre, résoudre, écrire*.

(d) The past participles of—*connaître, conduire, savoir, voir*.

3.—Give the French for—

(a) I will give you some. Give me some.

(b) You have shown it to him. Show it to me.

(c) I shall see you there. Do not await me there.

4.—Give the French for—

(a) This book and that pen are mine.

(b) Here are three books. This one is the teacher's, that one is yours, but whose is the third?

(c) Is this the author whose book we so much admired?

5.—Give the French for—

(a) Do you know how to dance?—Yes, but I wish I knew how to skate.

(b) He would like to go, and he would like you to go with him.

(c) He has just come in, but I have been here an hour.

(d) As soon as you have finished your lessons, you may go and play.

6.—Give the English for—

(a) Vous chantez tout faux.

(b) Il se moque de moi.

(c) Voulez-vous m'accompagner?—Je veux bien.

(d) Vous auriez pu vous en passer.

[Note that the following two questions are alternatives.]

7.—(a) Translate into French :—

There was a queer old black woman who lived all alone by herself in a small house near the school. This old woman had a very bad temper. The neighbours told horrible stories about her, so that the children were afraid to pass the house. They used always to turn just before they reached it, and cross to the other side of the street. This they did so regularly that their feet had worn a path in the grass. But for some reason the little girl found a great fascination in the little house. She liked to loiter about the door, always holding herself ready to turn and run in case the old woman rushed out upon her with a broomstick (*manche de balai*). There was a sort of perilous pleasure in doing this. It was like sitting at the entrance of a lion's cage, uncertain at what moment his Majesty might take it into his head to give a spring and eat you up.

Or,

(b) Write some twenty to thirty lines in French on one of the following subjects:—

- (i) A day in an English home.
- (ii) A walking-tour.
- (iii) Your favourite story.

## German.

1.—Translate into English:—

(a) *The Finger-post on the Mountain Road.*

“Weg nach Winkelsteg.”

Diese Worte standen am Holzarm. Aber der Regen hatte die altförmigen Buchstaben schier verwaschen und der Balken selbst wackelte im Wind.

Rungs um ist struppiger Tannenwald; über demselben stehen ein paar uralte Lärchen empor, deren kahles Geäste weit hineinragt in den Himmel. In der Tiefe einer felsigen Schlucht braust Gewässer. Unzählige Male führt die alte Bergstrasse mittelst schiefer, halb eingesunkener Holzbrücken über diesen Alpenbach, bis da herein, wo der Bergwald rechts sich lichtet und zwischen den Wipfeln zum erstenmale die Gletscher niederleuchten auf den Wanderer, der aus bevölkerten Gegenden kommt.

Der Wildbach gieszt von den Gletschern her. Die Strasse aber wendet sich links, milderer Waldgeländen zu, um nach Öden und Wildnissen endlich wieder in belebte Ortschaften einzuziehen. Das Fluszbgebiet entlang zieht nur ein verschwemmter, steiniger Hohlweg, über welchen der Sturm Fichtenstämme geworfen hatte, die nun seit Jahrzehnten lehnen und dorren.

Ich saz auf einem Felsblock neben dem Wegweiser und blickte zu jener grauen Spitze empor. Das war der weit und breit berühmte graue Zahn—das Ziel meiner Gebirgsreise.

(b) *Christmas under the Snow.*

Wir hatten ohne Färllichkeiten den kürzesten Tag hinter uns. Weihnachten, das schöne Fest der Heimat, rückte heran, und wir fühlten uns, da wir alle wohl waren, in der rechten Stimmung es festlich zu begehen. Während der letzten Tage hatte es heftig gestürmt. Am heiligen Abend war starker Schneefall, der unser Haus so tief begrub, dasz man am andern Morgen über das Dach, wie über den Boden hinschritt. In der Nacht vom ersten zum zweiten Festtag fiel dagegen ein Platzregen, dem eine starke Südwestbrise folgte. Dann wieder Schneegestöber. Die Unmasse des gefallenen Schnees, welchen der Sturmwind über das Feld

hinwirbelte, erlaubte kaum beim Gehen im Freien die Augen offen zu haben. Trotz der grössten Anstrengungen gelang es uns nicht, den Ausgang aus unserm Hause freizuhalten.

Nachmittags, während wir andern spazieren gingen, richtete man den Christbaum zu, und bei unser Rückkehr leuchtete die einsame Hütte in wunderbarem Glanze. Weihnachtsfeier auf einer grönländischen Eisscholle!

- 2.—Place before each of the following nouns the appropriate article, and give its genitive singular and its nominative plural:—Häusehen, Teppich, Haupt, Faust, Gedanke, Leib, Schmerz, Schlacht.
- 3.—Give the first and second person singular of the present indicative, the third person singular imperfect indicative, and the past participles of the following verbs:—nehmen, schwinden, fangen, wachsen, stehen, schneiden, fechten, essen.
- 4.—Give the German for—
  - (a) I get up, I have got up, when I had got up (aufstehen).
  - (b) I understand, I have understood, if I have understood (verstehen).

Distribute the following prefixes as separable and inseparable, and explain how each affects the meaning of the simple verb with which it is compounded:—ent, um, hin, ver, zer.
- 5.—Give the German for—
  - (a) Through the river.
  - (b) Beside the church.
  - (c) Put the book on the table.
  - (d) The glass is on the table.
  - (e) On the other side of the river.
- 6.—Decline in German, in the singular—the black dog, a black dog; and in the plural—old houses, some old houses.
- 7.—Give the German for—
  - (a) He will have been punished.
  - (b) After he has been punished.
  - (c) You will not be able to do it.
  - (d) I should have tired if I had stayed longer.
- 8.—(Note that the following questions are alternatives).

- (a) Translate into German:—

The place to which the children were going was a sort of marshy thicket at the bottom of a field near the house. It wasn't a big thicket, but it looked big, because the trees and bushes grew so closely that you could not see just where it ended. In winter the ground was damp and boggy, so that nobody went there, excepting cows, who don't mind getting



their feet wet; but in summer the water dried away, and then it was all fresh and green and full of delightful things, wild rose and daisies and birds' nests. Narrow, winding paths ran here and there, made by the cattle as they wandered to and fro. This place the children called "Paradise," and to them it seemed as wild and endless and full of adventures as any forest of fairy-land.

*Or,*

(b) Write some twenty to thirty lines in German on *one* of the following subjects:—

- (i) A day in your school.
- (ii) A walk through the streets of your native town.
- (iii) Your favourite poem.

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## Botany.

(Not more than six questions are to be answered. All answers are to be illustrated by good diagrams.)

- 1.—What parts of plants may be used for the storage of reserve materials? Give a list of the substances so stored with examples of plants which store them.
  - 2.—What are the functions of rhizomes and of tubers? Of what advantage are these structures to plants which flower in the early spring?
  - 3.—Some fruits are covered with hooks or hairs, while others are fleshy. Explain the biological significance of these features and give two examples of each kind of fruit.
  - 4.—Describe carefully two examples of flowers in which the stamens and stigmas attain their functional activity at different times. What explanation can be given of this peculiarity?
  - 5.—Give, with examples, a detailed account of the morphology of spines.
  - 6.—Describe fully a typical flower belonging to the Ranunculaceæ, Compositæ and Liliaceæ. Give two examples of plants belonging to each of these Orders.
  - 7.—The seeds of an annual and of a biennial plant are sown in the spring. Write a short account of the subsequent development in each case.
  - 8.—Write a short description of the plants which are commonly found growing upon the banks of a stream.
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MARCH, 1913.

**Zoology.**

- 1.—With the aid of drawings describe the structure and life-history of *Amoeba*.
  - 2.—Explain as fully as you can the green colour of *Hydra viridis*.
  - 3.—Write a few notes on the general life of the earthworm and describe its digestive system.
  - 4.—Describe frog spawn, stating the origin of the parts you mention.
  - 5.—What is a gland? Give examples.
  - 6.—How is respiration carried on in the rabbit?
  - 7.—Describe the heart of the rabbit, and state the general circulation of the blood.
  - 8.—What do you understand by sensory and motor nerves?
- (Seven questions only to be attempted.)
- 

**Chemistry.**

- 1.—What experiments would you make to prove that methane or marsh gas contains both carbon and hydrogen? How would you show that the proportion by weight of carbon to hydrogen is as three to one? What information does the formula  $\text{CH}_4$  further convey?
- 2.—Mention some of the uses to which the metals, copper, aluminium and zinc are put. Upon what properties of these metals does their use depend?
- 3.—Chlorine is said to be an oxidising agent. What do you understand by this statement? Describe the experiments you would make to illustrate your answer.
- 4.—State the Law of Multiple Proportions. Calculate the percentage composition of carbon monoxide and carbon dioxide, and show how the results can be used to illustrate the Law.
- 5.—You are given samples of iron, sulphur and sulphuric acid; what would you do with these materials to prepare from them (a) hydrogen, (b) sulphuretted hydrogen, (c) crystallised ferrous sulphate? Sketch the apparatus you would use.
- 6.—From what materials, and in what way, is the sulphur of commerce made? Describe precisely what happens when sulphur is slowly heated out of contact with air.

C=12. O=16.

## Physics.

- 1.—Describe a method, based on the principle of Archimedes, for determining the volume of an irregular solid.

Two pieces of glass, A and B, have the same density (2.5 grams per c.c.). The weight of A, when wholly immersed in a liquid of specific gravity 0.8, is the same as the weight of B, when wholly immersed in a liquid of specific gravity 1.2. The volume of A is 13 c.c., what is the volume of B?

- 2.—The temperature of maximum density of water is  $4^{\circ}$  C. Explain fully what is meant by this statement. State some of the consequences that arise from water having a temperature of maximum density.

- 3.—Describe an experiment for determining the latent heat of fusion of ice.

What change of volume occurs when water freezes?

- 4.—A mark at the bottom of a tank, containing water to a depth of one foot, is viewed by an observer looking vertically downwards. Determine, by means of a diagram, the position of the image of the mark. How could the result be tested by experiment? (Index of refraction of water = 1.33).

- 5.—Distinguish between converging and diverging lenses, and mention some of their uses. A small object is placed on the axis of a thin converging lens of 3 cms. focal length at a distance of 2.5 cms. from the lens. Determine the position of the image.

- 6.—A magnetic needle is mounted so that it is free to turn about a horizontal axis through its centre of gravity. Explain fully how it will set at Newcastle as the direction of the horizontal axis is changed. Give the direction of the horizontal axis when the needle makes the smallest angle with the horizontal.

- 7.—Two cells, A and B, are joined in series and produce a current, through a circuit, of .052 ampere. Cell B has its terminals interchanged, and the current through the same circuit is then .016 ampere, the direction of the current being the same as before. The E.M.F. of A is 2.1 volts, what is the E.M.F. of B? Describe the experimental arrangements indicated in this question.
-

## Mechanics.

(Seven questions to be attempted.)

- 1.—If a particle starting with a velocity  $u$  moves in a straight line under a constant acceleration  $a$  for a distance of  $h$  feet, show that the velocity acquired is  $(u^2 + 2ah)^{\frac{1}{2}}$  feet per second.

A stone is thrown vertically upwards with a certain velocity from the top of a tower and reaches the ground at the foot of the tower in 10 seconds; if it is thrown vertically downwards with the same velocity it reaches the ground in 5 seconds; find the velocity of projection and the height of the tower.

- 2.—Prove the parallelogram of velocities. A shot is fired due south with a velocity of 1,400 feet per second from a ship steaming 25 knots NE.; find the total velocity of the shot.

- 3.—Define *force*, *momentum*.

A force equal to the weight of one ton acts on a mass of 80 tons for 3 minutes; find the momentum at the end of that time and the number of units of work done by the force.

- 4.—Prove that the sum of the moments of two like parallel forces in one plane about a point in their plane is equal to the moment of their resultant.

A uniform rod with weights of 8 lb. and 5 lb. hung at the ends  $A$  and  $B$  respectively balances about a point 24 inches from  $A$ . If the weight  $B$  is now removed it balances about a point 6 inches from  $A$ . Find the weight and length of the rod.

- 5.—A particle is projected with velocity  $v$  in a direction inclined to the horizon at an angle  $\alpha$ ; find the range on the horizontal plane through the point of projection.

When will the particle be moving in a direction which makes an angle  $\beta$  with the horizon?

- 6.—Find the horse-power exerted by an engine which maintains a train at a constant speed of 30 miles an hour on an upward incline of 1 in 176, the resistance being 10 lb. per ton and the total weight of the train 225 tons.

- 7.—Two unequal masses are connected by an inextensible string passing over a smooth fixed pulley, and move vertically under the action of gravity; find their acceleration and the tension of the string.

Find the ratio of the masses if starting from rest they move through 50 feet in 5 seconds.

- 8.—Find the point in which a particle projected with given velocity from the foot of an inclined plane strikes the plane.

Show that for a maximum range on the plane the direction of projection bisects the angle between the plane and the vertical.

- 9.—Show that the normal acceleration of a particle describing a circle of radius  $r$  with velocity  $v$  is  $v^2/r$ .

If a particle at the end of a string of length  $l$  attached to a fixed point describes a horizontal circle with uniform velocity, show that the time of a complete revolution is  $2\pi\sqrt{l \cos \alpha/g}$ , where  $\alpha$  is the inclination of the string to the vertical.

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## Presentations to Library during 1913-1914.

Prof. Sir G. H. PHILIPSON—

Proceedings of Royal Society of Medicine (as issued).  
 Quarterly Journal of Medicine (as issued).  
 Medical Times.  
 Boston Medical and Surgical Journal.  
 Roberts' Theory and Practice of Medicine.  
 University of Hong Kong Calendar.

Prof. HOWDEN—

Gray's Anatomy, 18th edition, 1913.

PROVINCIAL MUSEUM OF ONTARIO—

Archaeological Report, 1912.

W. E. ALDERSON, M.D.—

Dental Anaesthetics, 2nd edition, 1912.

Prof. STUART McDONALD—

Adami's Principles of Pathology, vol. 1, 1909.

Prof. BAINBRIDGE—

Halliburton, Handbook of Physiology, 10th edition.

Dr. BOLAM—

Vols. 1-9 Journal of Anatomy and Physiology; vols. 30 and 31 Journal of Physiology; and 3 vols Journal of Pathology and Bacteriology.

A. F. TREDGOLD—

Mental Deficiency (Amentia), 2nd edition, 1914

CASELL & Co., LD.—

Hygiene and Public Health (Whitelegge).

Prof. HUTCHENS—

Besson's Bacteriology, English edition, 1913.

GEORGE HARE PHILIPSON, KT.,

M.A., M.D., D.C.L., LL.D., F.R.C.P., PRESIDENT.

FREDERICK PAGE,

M.A., M.D., F.R.C.S., REGISTRAR.

ROBERT HOWDEN,

M.A., M.B., D.Sc., SECRETARY

*University of Durham College of Medicine,  
 Newcastle-upon-Tyne, 1914.*

# University of Durham College of

## INCOME AND EXPENDITURE FOR THE

|                                                                                                                           | RECEIPTS. | £     | s. | d. |
|---------------------------------------------------------------------------------------------------------------------------|-----------|-------|----|----|
| To Fees from Students ... ..                                                                                              |           | 2,995 | 18 | 6  |
| „ Matriculation Examination Fees ... ..                                                                                   |           | 102   | 15 | 0  |
| „ Fees from Anatomical Department ... ..                                                                                  |           | 107   | 5  | 7  |
| „ Fees for Public Health Work ... ..                                                                                      |           | 1,864 | 16 | 4  |
| „ Fees for Examination of Pathological Specimens                                                                          |           | 80    | 17 | 7  |
| „ Grant from Board of Education ... ..                                                                                    |           | 2,033 | 13 | 4  |
| „ Endowments of Professors' Chairs... ..                                                                                  |           | 335   | 2  | 0  |
| „ University of Durham; Medical Scholarships,<br>Amount due under Statute 98 (a), Share<br>of Surplus Income, etc. ... .. |           | 1,563 | 0  | 0  |
| „ Royal Victoria Infirmary—Grant for services<br>rendered ... ..                                                          |           | 435   | 1  | 6  |
| <hr/>                                                                                                                     |           |       |    |    |
| Total receipts for year ... ..                                                                                            |           | 9,518 | 9  | 10 |
| „ Balance, being deficiency at 31st December, 1913                                                                        |           | 204   | 10 | 7  |
| (Receipts due at 31st December, 1913, £1,282 17s. 6d.)                                                                    |           |       |    |    |

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£9,723 0 5

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# Medicine, Newcastle-upon-Tyne.

YEAR ENDING 31ST DECEMBER, 1913.

| PAYMENTS.                                                                      |     |     |     |     |     | £     | s. | d. |
|--------------------------------------------------------------------------------|-----|-----|-----|-----|-----|-------|----|----|
| By Salaries and Wages, and Fees to Armstrong College                           | ... | ... | ... | ... | ... | 6,837 | 17 | 4  |
| „ Matriculation Examination Expenses                                           | ... | ... | ... | ... | ... | 43    | 6  | 8  |
| „ Fees Returned                                                                | ... | ... | ... | ... | ... | 21    | 0  | 0  |
| „ Museum, Library, Gold Medals and Prizes, and University Medical Scholarships | ... | ... | ... | ... | ... | 302   | 2  | 8  |
| „ Rates, Taxes, and Insurance                                                  | ..  | ... | ... | ... | ... | 358   | 6  | 6  |
| „ Gas, Electric Light, Fuel, and Water                                         | ... | ... | ... | ... | ... | 191   | 5  | 5  |
| „ Printing and Stationery, Advertising, Stamps and Postages                    | ... | ... | ... | ... | ... | 467   | 18 | 8  |
| „ Departmental Expenses and Repairs                                            | ... | ... | ... | ... | ... | 528   | 9  | 3  |
| „ Miscellaneous Expenses                                                       | ... | ... | ... | ... | ... | 177   | 7  | 7  |
| „ Interest on Mortgages                                                        | ... | ... | ..  | ... | ... | 402   | 2  | 10 |
| Total Payments for year...                                                     |     |     |     |     |     | 9,329 | 16 | 11 |
| „ Deficiency at 31st December, 1912                                            | ... | ... | ... | ... | ... | 393   | 3  | 6  |
| (Payments due at 31st December, 1913, £827 1s. 11d.)                           |     |     |     |     |     |       |    |    |

£9,723 0 5



# Dr.                      Scholarship Deposit Accounts

|                     |                                                           | £     | s. | d. | £   | s. | d. |
|---------------------|-----------------------------------------------------------|-------|----|----|-----|----|----|
| (1) Heath—          |                                                           |       |    |    |     |    |    |
|                     | To Balance at Bank at 31st December, 1912 ... ..          | 785   | 7  | 11 |     |    |    |
|                     | „ Interest on Investment and Bank Interest to date ... .. | 126   | 14 | 7  |     |    |    |
|                     |                                                           | <hr/> |    |    | 912 | 2  | 6  |
| (2) Stephen Scott—  |                                                           |       |    |    |     |    |    |
|                     | To Balance at Bank at 31st December, 1912 ... ..          | 123   | 6  | 11 |     |    |    |
|                     | „ Interest on Investment and Bank Interest to date ... .. | 47    | 17 | 10 |     |    |    |
|                     |                                                           | <hr/> |    |    | 171 | 4  | 9  |
| (3) Charlton—       |                                                           |       |    |    |     |    |    |
|                     | To Balance at Bank at 31st December, 1912 ... ..          | 2     | 15 | 8  |     |    |    |
|                     | „ Interest on Investment and Bank Interest to date ... .. | 30    | 9  | 6  |     |    |    |
|                     |                                                           | <hr/> |    |    | 33  | 5  | 2  |
| (4) Gibb—           |                                                           |       |    |    |     |    |    |
|                     | To Balance at Bank at 31st December, 1912 ... ..          | 0     | 17 | 6  |     |    |    |
|                     | „ Interest on Investment and Bank Interest to date ... .. | 23    | 15 | 10 |     |    |    |
|                     |                                                           | <hr/> |    |    | 24  | 13 | 4  |
| (5) Luke Armstrong— |                                                           |       |    |    |     |    |    |
|                     | To Balance at Bank at 31st December, 1912 ... ..          | 47    | 19 | 5  |     |    |    |
|                     | „ Interest on Investment and Bank Interest to date ... .. | 26    | 2  | 10 |     |    |    |
|                     |                                                           | <hr/> |    |    | 74  | 2  | 3  |
| (6) Dickinson—      |                                                           |       |    |    |     |    |    |
|                     | To Balance at Bank at 31st December, 1912 ... ..          | 37    | 3  | 3  |     |    |    |
|                     | „ Interest on Investment and Bank Interest to date ... .. | 15    | 4  | 9  |     |    |    |
|                     |                                                           | <hr/> |    |    | 52  | 8  | 0  |
| (7) Tulloch—        |                                                           |       |    |    |     |    |    |
|                     | To Balance at Bank at 31st December, 1912 ... ..          | 63    | 19 | 7  |     |    |    |
|                     | „ Interest on Investment and Bank Interest to date ... .. | 16    | 3  | 3  |     |    |    |
|                     |                                                           | <hr/> |    |    | 80  | 2  | 10 |
| (8) Gibson—         |                                                           |       |    |    |     |    |    |
|                     | To Balance at Bank at 31st December, 1912 ... ..          | 0     | 4  | 0  |     |    |    |
|                     | „ Interest on Investment and Bank Interest to date ... .. | 8     | 10 | 10 |     |    |    |
|                     |                                                           | <hr/> |    |    | 8   | 14 | 10 |
| (9) Outterson-Wood— |                                                           |       |    |    |     |    |    |
|                     | To Bank Interest at 31st December, 1912 ... ..            |       |    |    | 1   | 5  | 0  |

# For the Year ending 31st December, 1913. Cr.

|                                                          | £   | s. | d. | £   | s. | d. |
|----------------------------------------------------------|-----|----|----|-----|----|----|
| (1) Heath—                                               |     |    |    |     |    |    |
| By Balance at Bank at date ..                            | 912 | 2  | 6  | 912 | 2  | 6  |
| (2) Stephen Scott—                                       |     |    |    |     |    |    |
| By Balance at Bank at date ...                           | 171 | 4  | 9  | 171 | 4  | 9  |
| (3) Charlton—                                            |     |    |    |     |    |    |
| By Scholarship paid to Mr. J. S. Arkle ... ..            | 30  | 1  | 1  |     |    |    |
| „ Balance at Bank at date ...                            | 3   | 4  | 1  | 3   | 4  | 1  |
|                                                          | 33  | 5  | 2  |     |    |    |
| (4) Gibb—                                                |     |    |    |     |    |    |
| By Scholarships paid to Messrs. Measham and Metcalfe ... | 23  | 10 | 10 |     |    |    |
| „ Balance at Bank at date ...                            | 1   | 2  | 6  | 1   | 2  | 6  |
|                                                          | 24  | 13 | 4  |     |    |    |
| (5) Luke Armstrong—                                      |     |    |    |     |    |    |
| By Scholarship paid to Mr. Wm. Hudson ... ..             | 24  | 9  | 8  |     |    |    |
| „ Balance at Bank at date ...                            | 49  | 12 | 7  | 49  | 12 | 7  |
|                                                          | 74  | 2  | 3  |     |    |    |
| (6) Dickinson—                                           |     |    |    |     |    |    |
| By Scholarship paid to Miss Evelyn Ritson ... ..         | 14  | 2  | 6  |     |    |    |
| „ Balance at Bank at date ...                            | 38  | 5  | 6  | 38  | 5  | 6  |
|                                                          | 52  | 8  | 0  |     |    |    |
| (7) Tulloch—                                             |     |    |    |     |    |    |
| By Balance at Bank at date ...                           | 80  | 2  | 10 | 80  | 2  | 10 |
| (8) Gibson—                                              |     |    |    |     |    |    |
| By Prize paid to Mr. H. Fairclough                       | 8   | 9  | 6  |     |    |    |
| „ Balance at Bank at date ...                            | 0   | 5  | 4  | 0   | 5  | 4  |
|                                                          | 8   | 14 | 10 |     |    |    |
| (9) Outterson-Wood—                                      |     |    |    |     |    |    |
| By Balance at Bank at date ...                           | 1   | 5  | 0  | 1   | 5  | 0  |

Total as per Balance Sheet ... .. £1,257 5 1

# Balance Sheet—

|                                                                                                                                                                          | £      | s. | d. | £       | s. | d. |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|----|----|---------|----|----|
| To Sale of Old College Buildings, <i>less</i><br>Costs of Arbitration, and interest on Advances ... ..                                                                   | 17,812 | 12 | 3  |         |    |    |
| „ Donations to New Building Fund                                                                                                                                         | 4,633  | 18 | 0  |         |    |    |
|                                                                                                                                                                          |        |    |    | 22,446  | 10 | 3  |
| „ Legacy from the late Dr. Heath for Residential Hall, now applied to Extension of Laboratories and Erection of Students' Rooms (including Accumulated Dividends) ... .. |        |    |    | 8,171   | 8  | 2  |
| „ Mortgage Redemption Account—<br>Amount paid off out of Income                                                                                                          |        |    |    | 875     | 0  | 0  |
| „ Transfer from Income against New Wing Expenditure—<br>As at 31st December, 1909 ...                                                                                    |        |    |    | 1,100   | 0  | 0  |
| „ Mortgages on Land and Buildings                                                                                                                                        |        |    |    | 10,125  | 0  | 9  |
|                                                                                                                                                                          |        |    |    | 42,717  | 19 | 2  |
| „ Scholarship Endowments--                                                                                                                                               |        |    |    |         |    |    |
| Stephen Scott ... ..                                                                                                                                                     | 1,250  | 0  | 0  |         |    |    |
| Tulloch ... ..                                                                                                                                                           | 400    | 0  | 0  |         |    |    |
| Dickinson ... ..                                                                                                                                                         | 400    | 0  | 0  |         |    |    |
| Charlton ... ..                                                                                                                                                          | 501    | 16 | 0  |         |    |    |
| Dr. Gibb ... ..                                                                                                                                                          | 500    | 0  | 0  |         |    |    |
| Dr. Luke Armstrong ..                                                                                                                                                    | 400    | 0  | 0  |         |    |    |
| Dr. Heath ... ..                                                                                                                                                         | 3,600  | 0  | 0  |         |    |    |
| Dr. Gibson ... ..                                                                                                                                                        | 225    | 0  | 9  |         |    |    |
| Dr. Outtersen Wood ... ..                                                                                                                                                | 250    | 0  | 0  |         |    |    |
|                                                                                                                                                                          | 7,526  | 16 | 9  |         |    |    |
| „ Unawarded Scholarships ... ..                                                                                                                                          | 1,257  | 5  | 1  |         |    |    |
|                                                                                                                                                                          |        |    |    | 8,784   | 1  | 10 |
| „ Heath Chair of Comparative Pathology—<br>Legacy from the late Dr. Heath                                                                                                |        |    |    | 5,000   | 0  | 0  |
| „ Donation—<br>From Estate of late James Tol-<br>man, Esq. ... ..                                                                                                        |        |    |    | 2,000   | 0  | 0  |
| „ Gymnasium—<br>Dr. Heath's Donation and Inter-<br>est, <i>less</i> Cost of Fitting Up<br>Gymnasium ... ..                                                               |        |    |    | 85      | 11 | 1  |
| Carried forward ...                                                                                                                                                      |        |    |    | £58,587 | 12 | 1  |

# 31st December. 1913.

|                                                                                            | £       | s. | d. |
|--------------------------------------------------------------------------------------------|---------|----|----|
| By Land—                                                                                   |         |    |    |
| Cost of Site, etc., to 31st May, 1891 ...                                                  | 5,190   | 0  | 0  |
| „ Buildings—                                                                               |         |    |    |
| Expenditure to 31st May, 1893...                                                           | 21,046  | 19 | 1  |
| „ Furniture and Fittings ...                                                               | 2,755   | 9  | 11 |
| „ Sundry Charges, including Costs of Second Mortgage ...                                   | 470     | 11 | 3  |
| „ New Wing—                                                                                |         |    |    |
| Expenditure to 31st May, 1907 ...                                                          | 14,614  | 16 | 10 |
|                                                                                            | 44,077  | 17 | 1  |
| „ Investments—(Scholarships) ...                                                           | £7,526  | 16 | 9  |
| At Lloyds Bank, Limited, on Deposit—Sundry Accounts                                        | 1,257   | 5  | 1  |
|                                                                                            | 8,784   | 1  | 10 |
| „ Investment—(Heath Chair of Comparative Pathology)—                                       |         |    |    |
| £3,353 Newcastle and Gateshead Water Company 5 per cent. Consolidated Preference Stock ... | 5,000   | 0  | 0  |
| „ Investment—(Toleman, Midwifery Chair)—                                                   |         |    |    |
| £900 North Eastern Railway Company 4 per cent. Preference Stock ...                        | 1,011   | 13 | 6  |
| „ Investment—(Toleman, Pathology Chair)—                                                   |         |    |    |
| £893 North Eastern Railway Company 4 per cent. Preference Stock ...                        | 1,000   | 0  | 0  |
| Carried forward ...                                                                        | £59,873 | 12 | 5  |

### Balance Sheet—

[illegible]

# 31st December, 1913.—*Continued.*

|                                              | £       | s. | d. |
|----------------------------------------------|---------|----|----|
| Brought forward ...                          | £59,873 | 12 | 5  |
| By Cash at Lloyds Bank, Ltd.—                |         |    |    |
| Deposit (Gymnasium) ... ..                   | 85      | 11 | 1  |
| Deposit (Contributory Governors' Account)... | 1,391   | 2  | 9  |
| Deficit Amortization Account (Composition    |         |    |    |
| Fees) ... ..                                 | 367     | 12 | 7  |
| Composition Fees Suspense Accounts ... ..    | 3,958   | 8  | 10 |
| „ Deficiency at 31st December, 1913 ... ..   | 204     | 10 | 7  |

Audited and Certified,

MONKHOUSE, GODDARD & Co.,

*Chartered Accountants.*

19th January, 1914.

£65,880 18 3

# GUY'S HOSPITAL MEDICAL SCHOOL.

*The Hospital contains accommodation for 618 Patients, an additional 50 Beds having been opened on the Medical side of the Hospital.*

Special Classes are held for Students preparing for the University and other Higher Examinations.

## APPOINTMENTS.

All Hospital Appointments are made strictly in accordance with the merits of the Candidates, and without extra payment. There are 24 Resident Appointments open to Students of the Hospital annually without payment of additional fees, and numerous Non-resident Appointments in the general and special departments. The Queen Victoria Ward provides accommodation for gynæcological and maternity cases.

## ENTRANCE SCHOLARSHIPS,

**Yearly in September.**

JUNIOR SCHOLARSHIPS in Arts and Science, of the value of £120, £100, and £50 open to Candidates under 21 years of age, and

TWO SENIOR OR UNIVERSITY SCHOLARSHIPS of the value of £75 and £35, open to candidates under 25 years of age, who have completed their study of Anatomy and Physiology.

## PRIZES AND SCHOLARSHIPS

Amounting in the aggregate to more than £900, are open to Students in the present year.

## DENTAL SCHOOL.

A recognised Dental School is attached to the Hospital, which affords to Students all the instruction required for a Licence in Dental Surgery, including the two years' pupilage.

## NEW SCHOOL BUILDINGS.

The new Theatres and Laboratories, afford every facility for practical instruction in Physiology, Chemistry, Physics, Public Health and other subjects, and the new Gordon Museum houses an unrivalled collection of anatomical and pathological specimens.

## COLLEGE.

The Residential College accommodates about 50 Students in addition to the Resident Staff of the Hospital. It contains a large Dining Hall, Reading Room, Library, and Gymnasium for the use of the STUDENTS' CLUB.

---

**For Prospectus and further information, apply to the Dean,  
Dr. CAMERON, Guy's Hospital, LONDON BRIDGE, S.E.**



# St. Bartholomew's Hospital and College.

FOUNDED BY RAHERE, A.D. 1123.

## Preliminary Scientific Department.

The Instruction in this Department has been remodelled to meet the requirements of the New Regulations of the University of London.

A course of **Lectures and Laboratory Work** in **BIOLOGY**, **CHEMISTRY** and **PHYSICS** is given throughout the year. Students may join at any time.

## Intermediate Examination in Medicine.

Full and complete Courses of instruction in :—

- 1.—**ANATOMY**, including **DISSECTIONS**.
- 2.—**PHYSIOLOGY**, including **PRACTICAL WORK** in **Histology**, **Experimental** and **Chemical Physiology**.
- 3.—**PHARMACOLOGY**, including **MATERIA MEDICA** and **PRACTICAL PHARMACY**.

## Hospital Practice and Clinical Appointments.

The Clinical Practice comprises a service of 757 beds, of which 234 are allotted to **Medical Cases**, 310 to **Surgical Cases**, 25 to Diseases of the Eye, 30 to Diseases of Women, 17 to Maternity Cases, 20 to Diseases of the Throat and Ear, 51 to General and Isolation Cases, and 70 to Convalescents.

Number of Cases in 1913 :—

**In-Patients, 8,984.**

**Out-Patients, over 78,000.**

Ten House Surgeons, Ten House Physicians, Two Midwifery Assistants, Four External Midwifery Assistants, Two Ophthalmic House Surgeons, Two Laryngeal and Aural House Surgeons and Three Resident Anæsthetists are appointed annually. Two hundred and fifty clinical appointments are available for undergraduates every three months.

## Scholarships and Prizes.

Scholarships and Prizes to the total value of over £1,000 are awarded annually.

Three **Entrance Scholarships** and two **Exhibitions** worth respectively £150, £75, £75, £100, and £50 are awarded after an examination held in September annually, some in Science, some in Arts.

A Handbook of the Hospital and College will be forwarded on application. All communications should be addressed to—

**The DEAN of the Medical School,**

**St. Bartholomew's Hospital, E.C.**

# CHARING HOSPITAL MEDICAL SCHOOL.

(UNIVERSITY OF LONDON.)

---

**The Sessions commence October and April.**

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The most central and easily accessible of all the Colleges of the University, and situated within four minutes' walk of the University Laboratories (King's College).

The whole College has recently undergone the most extensive alterations and improvements in all departments, adding greatly to its educational efficiency and the social Collegiate advantages enjoyed by its Students.

Its close proximity to the UNIVERSITY LABORATORIES in King's College enables its Students to obtain the best Scientific Education in their Primary and Intermediate Studies, while still allowing them to use their School Library, Club Rooms, &c., for study and social purposes.

For the purposes of its Final Studies, the School now possesses most commodious LABORATORIES, special LABORATORIES having been set aside for Poste-Graduate Study and Research.

A large LABORATORY, capable of accommodating over 100 students, is set aside for General Pathology—where each Student can work throughout the three years of his Final Studies.

A large series of LABORATORIES—eleven in number—have been equipped by the School for PUBLIC HEALTH, BACTERIOLOGY, and other subjects connected with SANITARY SCIENCE, and the University of London have transferred their whole Public Health and Bacteriological Departments with Professorial and Teaching Staff from King's College to these Laboratories, and established these as UNIVERSITY LABORATORIES IN PUBLIC HEALTH.

All Departments of the Students' Club, including the Library, Reading, Dining Rooms, &c., have been renovated and made most comfortable.

CLERKSHIPS, Medical, Surgical, Pathological, Post-Mortem, and Midwifery, are held by all Students.

RESIDENT APPOINTMENTS, Fourteen in number, are available each year, after qualification. The School presents unusual opportunities for Resident Appointments—the most valuable portion of all the Students' training.

CLINICAL ASSISTANTSHIPS and SALARIED APPOINTMENTS are open to Students.

For Prospectus and full information apply personally or by letter to the Dean,

**WILLIAM HUNTER, M.D., F.R.C.P.,**

Medical College, Charing Cross Hospital, London, W.C.

# **(M.D. DURHAM)**

**“Practitioners” Examination.**

---

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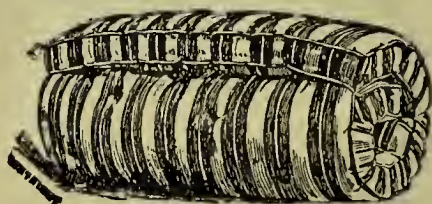
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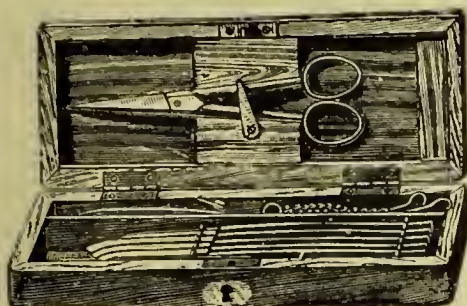
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